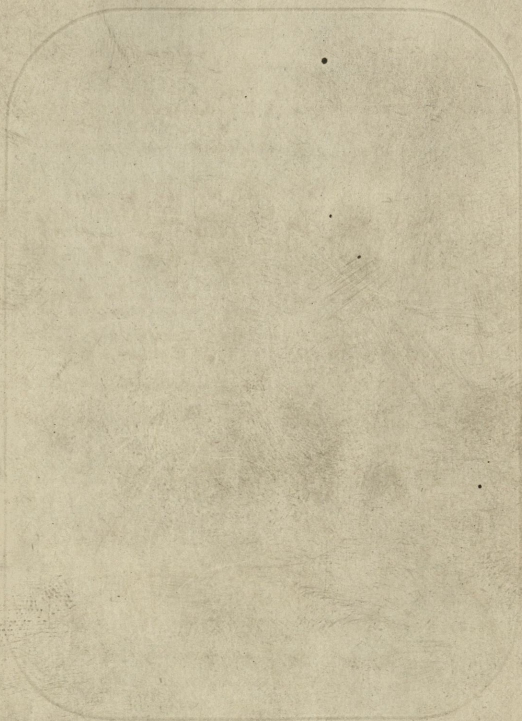
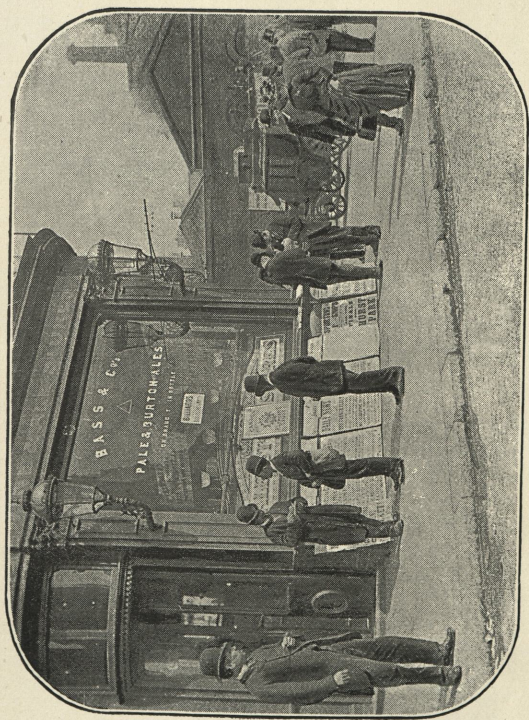


Vol 26- D





THE STREET NEWSVENDOR.

64 1

THE
HAND CAMERA
AND
HOW TO USE IT.

BY
WALTER D. WELFORD,

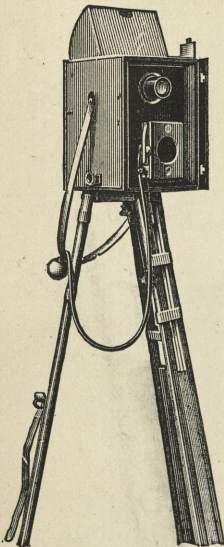
*Editor "Photographic Review of Reviews";
Hon. Sec. Midland Camera Club, London and Provincial, and Wolverhampton
Photographic Societies, &c., &c*



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1892.

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MANUFACTORY—CLAPHAM COMMON.

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PREFACE.

IT is perhaps desirable I should state at the outset that this book is practically a reprint of articles upon the hand camera that appeared weekly in *Photography*. They have been revised and rearranged; they have, in fact, been brought up to date, in book form. But so great is the future of the hand camera, so important is the part it will play in the photographic life—aye, and in our everyday life too—of the future, that it is with considerable misgiving I cease revision. I feel myself that

“The things we know to-day,
To-morrow we forget.”

And though the hand-camera is already well advanced, we have in no wise even approximated its ultimate variety and usefulness. I do not deprecate what I have written, but the future has possibilities, nay probabilities, big and ominous before it.

At the same time it is not given to every one to be a prophet, though as guides we may be able to help our fellow-workers. It is in this spirit that I submit my experiences and opinions, sincerely trusting that they may be of some use and interest to the many others who, like myself, believe the hand camera to be something more than a toy.

Let the future judge whether I exaggerate its importance.

WALTER D. WELFORD.

Birmingham, August, 1892.

LONDON:

ILIFFE AND SON, 3, ST. BRIDE STREET, LUDGATE CIRCUS, E.C.

WORKS: COVENTRY.

PART I

THE HAND CAMERA.

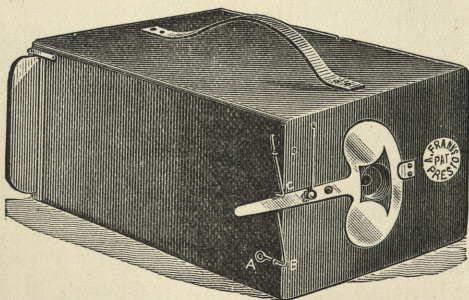
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The "PRESTO" CAMERA will produce every kind of Picture, Views, Groups and Moving Figures, any distance over three yards, the lens being achromatic and always in focus. The case is made of ebonised wood.

Do not think because the price being only 10/6 that the "PRESTO" is a useless Camera (as most cheap Cameras are). Photographers have tested the "PRESTO" and pronounced it a most PRACTICAL AND SUCCESSFUL CAMERA.

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PART I.—THE HAND CAMERA.

CHAPTER I.

INTRODUCTORY.

◉ WING to the varieties of make and principle upon the market, it must certainly be a somewhat difficult operation to make the choice of a hand camera. The description afforded by the manufacturer, or the actual inspection of two or three instruments in a shop, is not of much value. Nay, I'll go further, and say

Choosing a Hand Camera. that practical trial, if only a brief one, is of but little use. Certainly, if the intending purchaser can obtain a few really practical trials, he will stand a good chance of obtaining one that will meet his requirements—for the time being. Aye, there's the rub. He will hear of another one, he will see it, perchance, advertised and testimonialised, until the demons (Discontent and Change) chuckle as they smilingly say, "I told you so; we've got him." Then, probably, without knowing half as much of the new as of the old love, the advertisement promptly appears:

"For sale, a great bargain, the Lickemallout hand camera, condition equal to new; price £3 10s.; owner going abroad.—Apply, &c."

Though what "going abroad" has got to do with it is hard to tell. Because I know if I was going abroad, even to the Isle of Man, I should want a hand camera before even the proverbial tooth-brush and one clean collar. However, he sells his old friend and buys the new, yet, strange to say, is disappointed. There is probably some unforeseen feature that he does not like, and one which, had he known of its existence, he would not have changed for. Married life brings

its cares and troubles, so, too, do certain forms or patterns of cameras, which, whilst of no account to some, are specially interesting to others. It is in this way that I shall deal generally with the cameras themselves.

Which is the best hand camera? is a question constantly asked. My usual reply is, that though I have often seen it advertised, it has not yet passed through my hands for practical trial. And until I have used and tested the "best," I really cannot say. Anyway, the question is

Which is the Best? a stupid one, as unless the querist gives some idea of what he wants, how can anyone recommend any particular pattern? Ah, but a reader will say, "Suppose I give you *carte blanche* in your choice." Well, that would aid but little, for if I said the so-and-so is a good one, the reply is at once, "But that has a fixed focus lens, and I don't want that." And upon mentioning others, there would in each case be some point disliked. Why, in all conscience—if they've got any—why cannot amateurs fight these detail matters out for themselves.

On the other hand, there is the reader who knows, or thinks he knows, a thing or two. His thunderbolt is something like the following:—

- | | |
|--------------------|---------------------|
| A.—The Miraculous. | D.—The Vexatious. |
| B.—The Veracious. | E.—Jones's. |
| C.—Smith's. | F.—Brown's (No. 2). |

He asks, "Which of the above do you recommend for (1) good shutter; (2) certainty in action; (3) simplicity; (4) neatness in size and light weight; (5) multiplicity in power, and in addition I want an automatic changer—I have a great fancy for Jones's; can you recommend that?" Now, considering that Jones's is not an automatic changer at all, nor, indeed, are *any of the others*, that at least four of those mentioned would not fulfil condition 4 at all, that no one of them would answer more than three points, all of which the enquirer could see by a glance at the list or advertisement, and—well, what are you to do? If I could write "J.P."

after my name I know pretty clearly what I would do if I had half a chance. And there would be no lunacy enquiry either.

There is no "best" hand camera, and never will be. My ideal camera would be one on the reflector principle, giving a full-size image on a focussing screen, allowing the use of at least three lenses of different focus, roll-holder or automatic plate-changer at will by merely turning a milled head, power of altering form of shutter, alteration of diaphragm by breathing on the glass, varying exposure by saying "jump," altering the rapidity of the plate by "the patent spring x," and a few other trivial details to which our patentees, no doubt, are at the present time directing their attention. In fact, it should only be necessary to insert the plates in the dark room, and by one movement obtain finished, mounted and framed prints, with the exhibition medals attached thereto. It may be months, it may be years, before all this is accomplished, but it is bound to come—that is, if we are to satisfy some men.

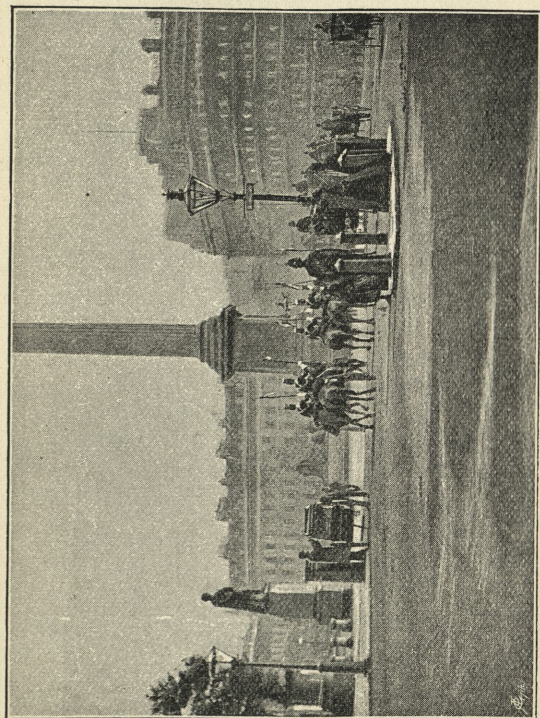
It will be my endeavour to point out the features, good and bad, of the various principles employed in cameras now on the market. In this way the reader will be able readily to form some opinion of his own generally, which he may afterwards find embodied in a certain make, or nearly so. By the bad features, I mean disadvantages or peculiarities, not fatal defects. Indeed, some of these very things may be held in high esteem by others. The reader can weigh up the *pros* and *cons* for himself. So much for the apparatus itself, and now a few words upon other points.

The actual use of a hand camera is not by a long way such an easy matter as most people think. I, of course, refer to those who do all their own work, not the button-pressers and the shoot-off-at-everything young man. It must be patent to all who have given the matter a thought, that the majority of results obtained are quite disproportionate in quality to those obtained in an ordinary camera. That is, the hand-

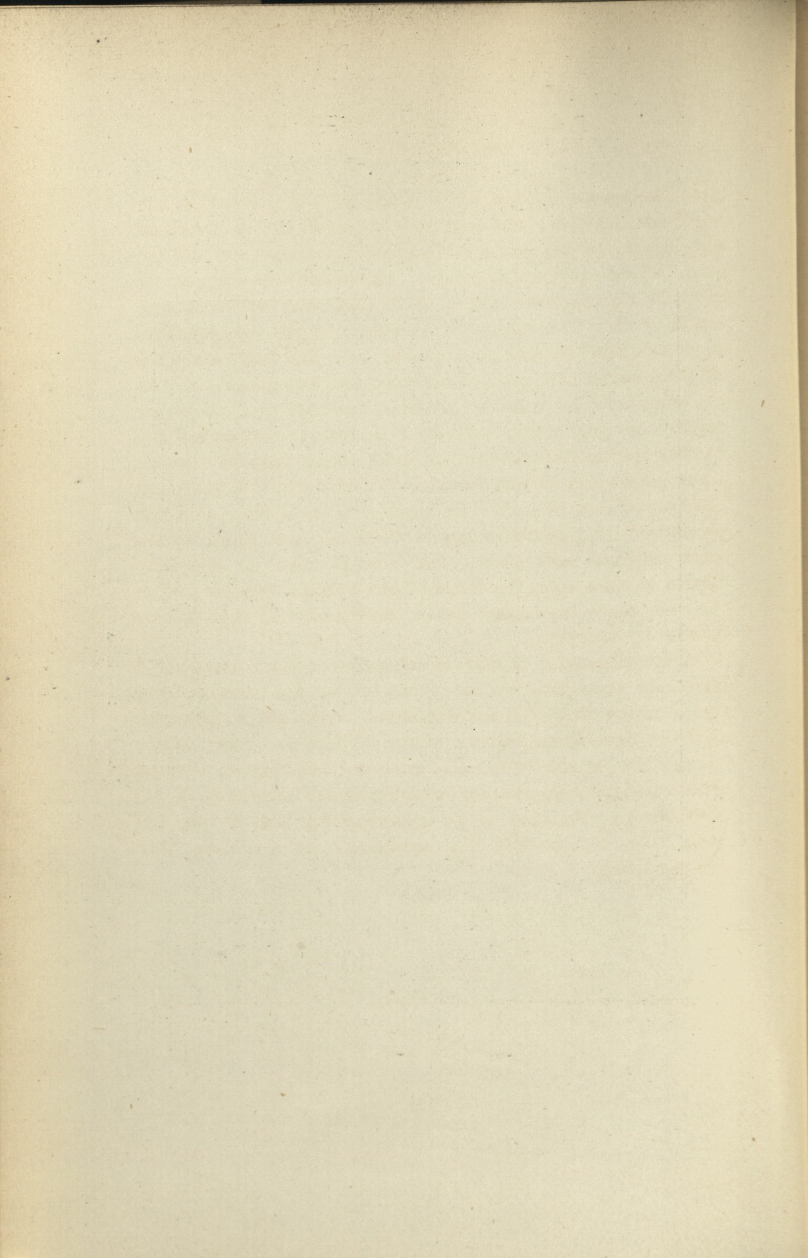
Use of a Hand Camera.

camera man in no wise approaches his *confrère*, allowing the two to start together as novices from the scratch mark, the one a beginner in photography altogether, and the other, though an old hand, taking up the hand camera for the first time. Now, by the number of patents and patterns in the market, and the activity shown recently in this direction, we are naturally led to conclude that hand cameras are selling in great quantities, and that there must be an enormous number in this country in the hands of amateurs. I won't say in use, for reasons to which we shall arrive directly. At the same time, this number is no doubt over-estimated, for I do not think so many are sold as is generally supposed. But, apart from this question altogether, it is impossible to get away from the fact that a great number have been sold these last two years. Well, where are the results? How many good hand-camera workers are there? Not very many. This fact was brought before my notice a short time ago in a way that emphasised the point. Talking to one of our best workers, I said something about almost everybody possessing a hand camera now. "Possibly," he replied, "but how many of them turn out anything worth looking at?" It was not egotism at all—that I felt at the time—but a plain fact which set my thoughts in a new direction. I feel constrained to agree with him after having studied the matter a little. To put it plainly, the purchaser of a hand camera does not, as a rule, succeed in pleasing either himself or anyone else. He fails oftener than he cares to.

There are several explanations of this, and the first is generally a want of perseverance. A few failures at first daunt not a few of our workers, who fly back to their $\frac{1}{2}$ -plate or $\frac{1}{4}$ -plate and tripod, with many sighs of relief and numerous expressions more or less forcible. They make no study of their apparatus, but consider that, as they succeed well enough in the ordinary way, all that is necessary is to buy a hand camera and fire off the shutter. These are the men who rail at the "snap-shot man." They never consider that special



LANCERS IN TRAFALGAR SQUARE




qualifications are necessary, and these more of a mental than a physical nature. The man who plans out the composition and lighting of his picture beforehand, focusses for half-an-hour, trying various apertures, calculates the length of exposure by apparatus and a table, and who will wait any length of time to secure what he wants, is the very opposite of what a hand-camera man should be. The latter must be of quick perception, prompt decision, and instant action. At the same time he must be coolness itself, so that, however rapidly he may work, his mind is free to remember the various mechanical movements, and to keep them in working order. He must be able to decide quickly what to take, and then as quickly take it. In some men the faculty of quick perception of pictorial effect is wanting, and probably the same slowness will show itself even if they do decide to expose a plate upon the subject before them, because before they are ready it is gone. But I shall deal with this subject more fully later on.

A further cause of failure, altogether away from what I have said as to some not being cut out for the work, is to be found in the fact that the exposures are at all times rapid, and the development needs study. There are other minor causes, but in the end it all comes to this, that to succeed with a hand camera, special attention must be paid to it. If considered a plaything, or an occasional toy just to pop out with, the results will be spasmodic to a degree, and disappointing.

CHAPTER II.

GENERAL DETAILS OF CONSTRUCTION.

 HAND camera may be defined as one constructed and arranged to make exposures in the hands. This does not quite cover all the ground, but it is explicit enough for practical purposes. Any ordinary camera, of course, can be used without such a support as a stand, or anything conveniently at hand; and before what we now

Definition. know as hand cameras became so popular, a good deal of instantaneous work was accomplished in this way. At the same time there must be distinctive terms in the world of apparatus, and—for my own convenience if you like—nothing but what is intended, as evidenced by construction or design, for special use in the hands without other supporting aid, will be considered as falling within the limits of the definition.

The term "Detective" is constantly used, not only by the public, but by our manufacturers. It is much to be regretted. The public are not to blame, for they know nothing about the matter. Indeed, had they been called

The Term Detective. "Police cameras," or "Body-snatchers," the term would doubtless have become just as popular and as widely used. When attempts were first made to conceal the nature of the instrument by covering up as much of the mechanism as possible in a box or case, the designation "detective" insidiously gained ground. Photographers, it is true, do not so term it, at least only the raw novices have a tendency that way. But the public do, and probably will continue to do so for many years. Abuses die hard, we know, and it is an abuse of a very useful tool. My

readers, however, may ask, "What's in a name?" Well, in this case, it conveys a distinctly wrong impression of what a hand camera is expected to be made for. The annoying part of it, too, is that the direction implied by the title is just the one photographers decry, viz., the seizing of incidents and scenes in which friends or others are portrayed awkwardly, or of positions that are very liable to lead to unpleasantness. All sensibly-minded men must agree that considerable annoyance may be caused by the indiscrimination of some weak mortal, whose whole ambition is to secure shots "for a lark" afterwards. And though at first sight there may appear very little in this matter worthy of attention in a photographic book, yet if the matter be studied a little it will easily be seen that the recoil will affect the man who uses his camera legitimately, equally with he who is the cause of the mischief by abusing the power he possesses. It is not long ago since the columns of the *Glasgow Herald* were filled with letters from the public objecting to the use of the hand camera. If this is any sort of index to public feeling upon the subject, it will become a factor in the future that the user of a hand camera will have to meet.

It is in this way that the word "detective" will prove its unsuitability and stupidity. It infers a purpose to which the public object, and will thus cause all hand cameras and all users of them to be placed in the same category, that of nuisances. I have already met with this difficulty in walking with or meeting friends. As soon as they see or learn what I have with me, they expect to be taken, "when they don't know," and are restless and nervous in consequence. On the contrary, the term hand camera would convey no such idea of purpose. And, after all, what does the whole matter come to? Just this, that even if the term is not objectionable, it is one that cannot be worked. To define a "detective" camera, I should say it was one designed by means of the concealment of its working parts, that the public should not know it was a camera at all. How many of the patterns really

succeed in this? And where are we to draw the line, because a "detective" to one man would not be so to another, who perchance knew a little about photography, whilst a photographer is always alive to the presence of a camera. So that whilst they are all hand cameras, they can only lay claim to the title "detective" just so far as they carry out the idea of concealment. And, as I have before said, there are so many degrees of knowledge of photo work by outsiders, that—well, crush out the word "detective" altogether, it is neither useful, ornamental, nor politic.

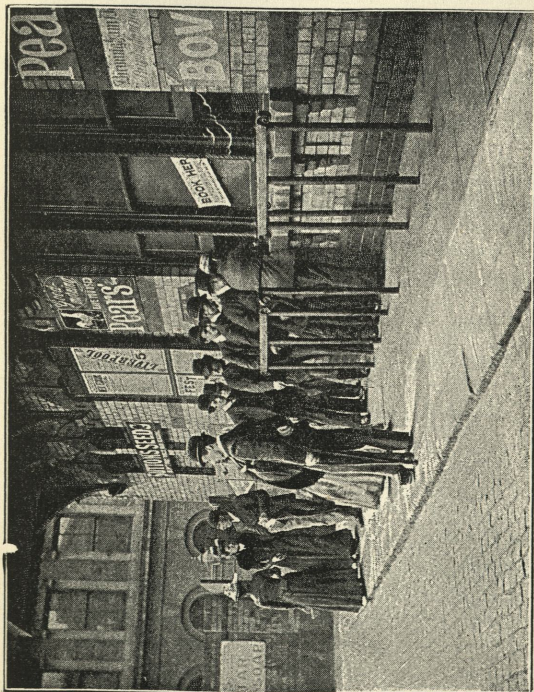
The earliest used, and simplest form, is that in which an ordinary camera is placed in a box, and by means of a registering focussing scale, a finder, view meter or spirit level, an aperture in front for the lens, and other varieties of convenience, it makes

The Box Pattern.

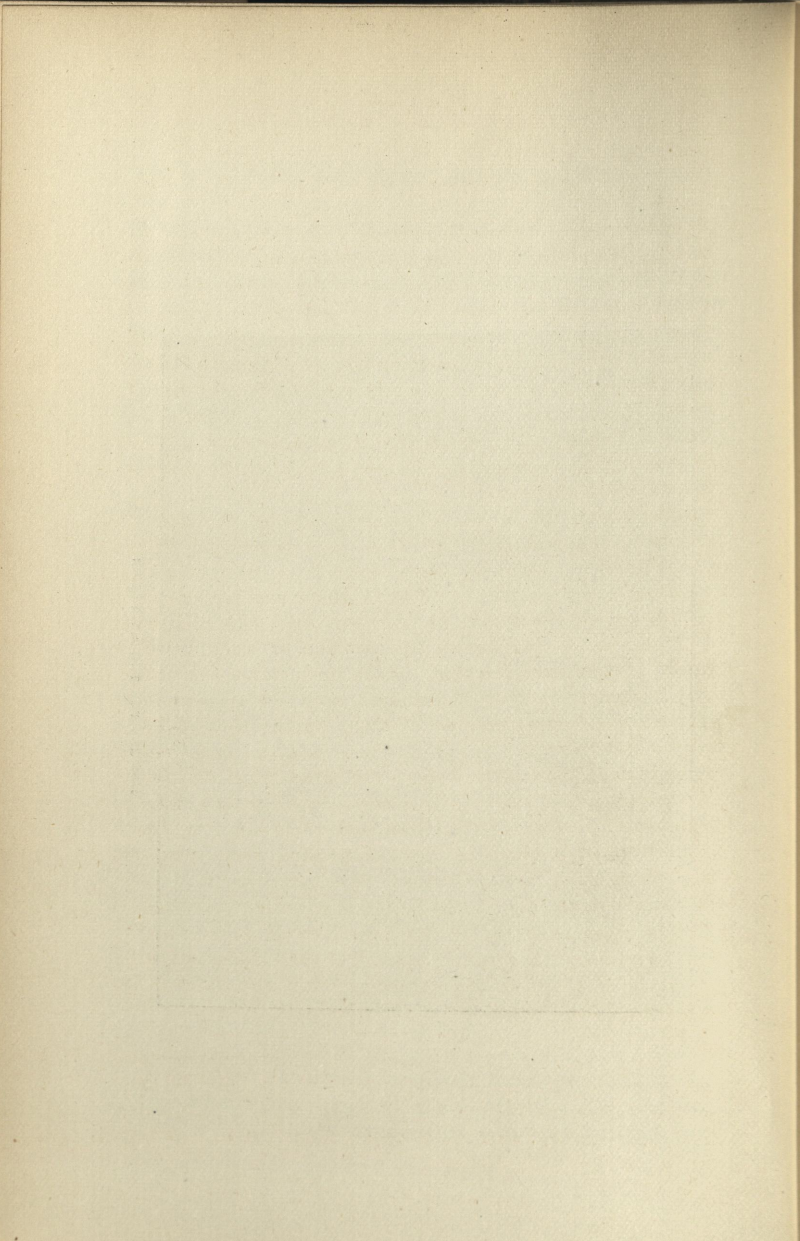
a most efficient apparatus. Indeed, many of the best patterns in use at the present day are upon this principle. In some, the body of the camera is the case itself, which economises space and weight. A good instance of this is given by one which, for full-size quarter-plates, measures outside only $8\frac{3}{4} \times 4\frac{5}{8} \times 6$, and weighs, without slides, $1\frac{1}{2}$ lbs., or, with six double slides, 3 lb. 6 oz. It is fair, however, to say that in this make extreme portability has evidently been sought after, as the slides themselves are of a specially light and thin pattern, and when not in use are carried inside the body. Still, with the exception of bag-changers, there is no form for plates which can be so kept down in size and weight. Yet at the same time that is not always studied, because in some patterns provision is made for the use of long-focus lenses by the usual double extension bellows, and places are provided at the sides and in the lid for the dark slides; so that in the end the apparatus becomes fairly bulky.

Taking the method of changing the exposed plate or film as a basis for classification—and it is really the greatest point of difference, because lenses and shutters, which are the only two

The Bag Changer.



BOOKING FOR THE EXCURSION



other features of any consequence, vary much less in principle or importance—the bag-changing system ranks next in order of similarity, if not of introduction. I have not classed it amongst the automatic methods, because I do not consider it to be “automatic.” The plates, which are usually in sheaths, are changed by the fingers grasping them through a light-tight bag or cover, the exposed plate being changed from back to front, or *vice versa*, the usual spring pressing forward the remaining plates. This system has many adherents, if it can be judged from the number of patterns utilising the principle in one form or another.

Then come the various movements adopted in what are termed “automatic changers.” These may be briefly described

**Automatic
Changers.**

as containing a reservoir or store of plates, usually a dozen, which are brought into position, or changed, by the turning, the pulling, or the pushing of some lever or screw. Their name is legion. Much time has been expended, and considerable ingenuity displayed, upon the various patents and ideas. Certainly some of them appear to be “love’s labour lost,” and one is apt to think that the firm wanted some patented speciality of their own to advertise and push; otherwise some of the rather elaborate movements would not have seen the light. Of course, automatic changing hand cameras must be more or less complicated when compared with those using dark slides only. But complication is not a desirable feature, and should, as far as possible, be avoided.

The paper or film in rolls has proved itself a useful ally in the direction of hand-camera work. The roll-holder is smaller

**Rollable Film
Patterns.**

than either three or four double slides, or the reservoirs of the automatic changers, whilst at the same time it gives a power of 48, 60, or 100 exposures. It is also of necessity very much lighter to carry. With the film-holder, not only is the apparatus so much lighter in weight and neater in dimensions than with those using plates, but an enormous

gain ensues upon a prolonged journey in distant countries, or even in our own if away from photographic centres. Twenty supply rolls would not add much in weight to the tourist's luggage. Indeed, the consideration would be one rather of bulk, though even that would be a mere trifle. With the roll-holder filled for 60 exposures and 20 extra rolls to use as required, a total of 1,260 exposures would be at disposal, for good or evil. Therefore, in this particular direction, the camera with a roll-holder possesses very great advantages, and has no equal.

A form of camera, which, however, does not permit of classification in the same way as the others, is the one upon the reflecting principle. It is so distinctly different from those using either dark slides or bags, and also

The Reflector. from the automatic changers, that I feel compelled to place it in a division by itself.

Although I have taken the method of changing the plate or film as the basis of classification, it must be departed from in this case. I am quite aware that patterns are made with dark slides, or changing bags, having also at the same time fittings for roll-holder. These are awkward to deal with, but it will be no injustice to the camera or myself to omit extra fittings in classifying them. The "reflector" is made both with dark slides or bag, and with an automatic changing method. The main feature of the principle is the throwing upon a ground glass screen of a full-sized image, capable of being focussed. It is managed in two ways. The first is simple enough, consisting, as it does, of two lenses, identical in focal length, and racking out together by one movement. One shows the image upon the screen, whilst the other is ready to grasp the scene upon the plate.

But the use of two lenses entails expense and considerable increase in bulk, when compared to the "reflector," which requires only one. This form has not as yet received the attention it deserves. Perhaps, however, I am wrong in saying this, because possibly considerable thought has been

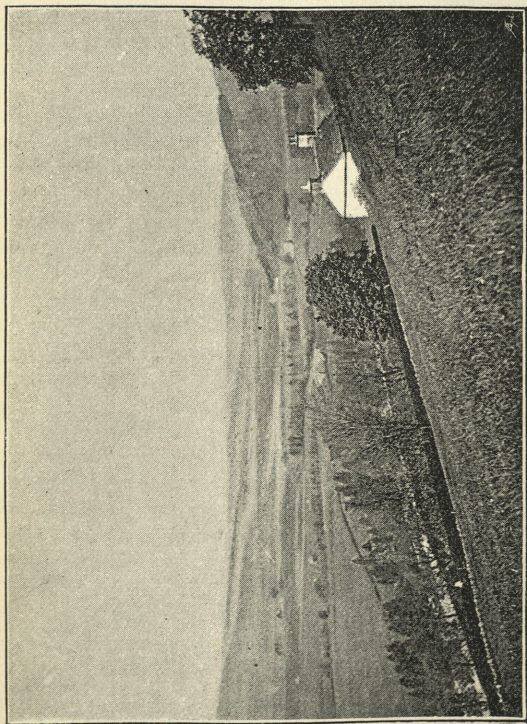
bestowed upon it. But considering the skilful mechanism and clever ideas brought forward in the various automatic changing methods, there appears to me an evidence of want of application. There are no very great difficulties to overcome, and if our inventive geniuses would go at it in earnest they would produce something good, I am sure. The principle is simple enough. A mirror inside the camera is required, the same as in those of the "twin lens" pattern, with some arrangement to get it out of the way, and to cover the focussing screen before admitting light to the plate. The difficulty is to obtain something to reflect the image that is light enough to admit of quick movement, without jar or risk of breakage. The simplest one I have seen was shown me by an amateur. In this the mirror was simply hinged at the top, so that in its normal position it covered the ground glass. Attached to the end of it nearest the lens was a blind on a roller, with an aperture to pass over the lens. In use the mirror was drawn down and caught, elastic bands being used of sufficient strength to pull it sharply back to the top again. As the mirror went up it took the blind with it, the aperture in its passage uncovering the lens for a brief period. The chief drawback was that the exposures were comparatively slow, as if the strength of the elastic was increased to give a fairly rapid shot, movement was almost sure to ensue, except perhaps in very experienced hands. However, the advantages of seeing the exact picture upon a ground glass, and being able to focus it quickly, are certainly great, and herein the "reflector" possesses a marked speciality.

CHAPTER III.

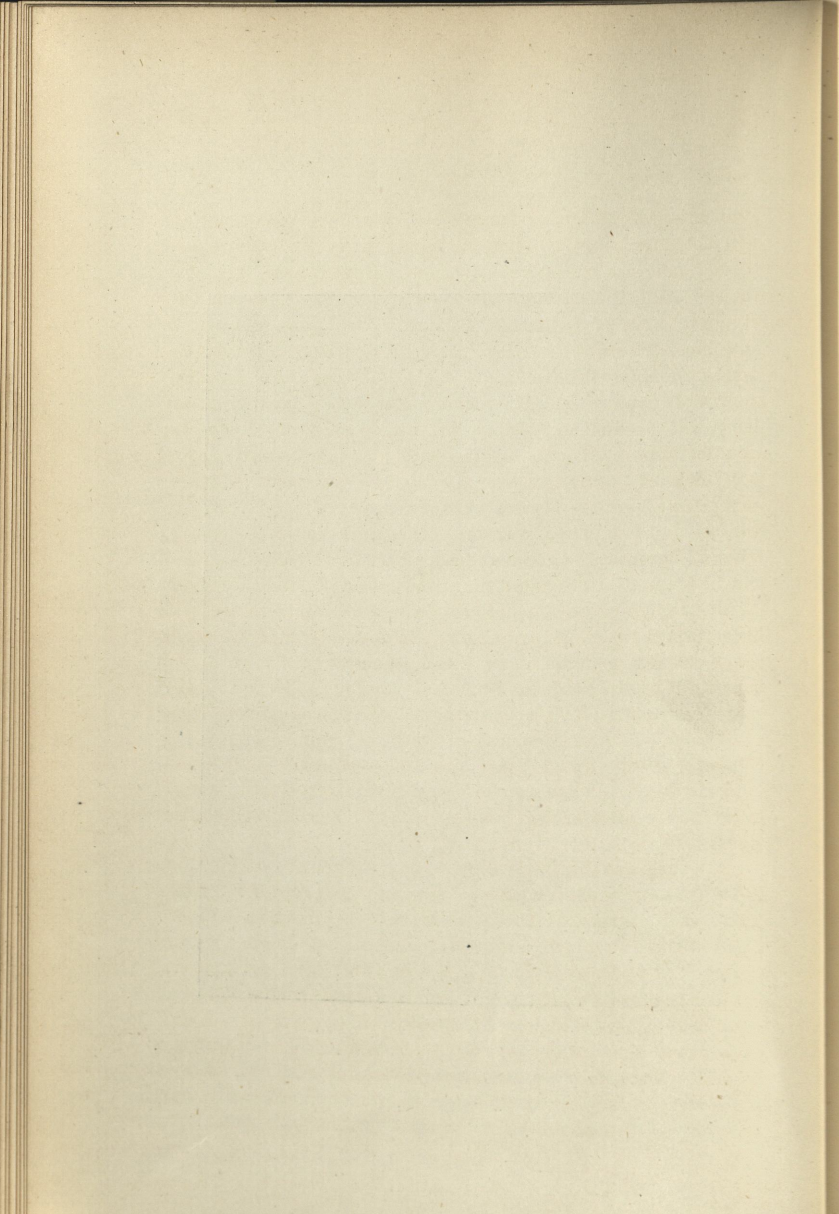
THE LENS AND SHUTTER.

THE lens fitted or adopted to the hand camera probably takes next place, though as far as the results go it ought to rank as the principal thing. However, as there is but very slight variation in the lens used, I deal with it as secondary. Two varieties are used chiefly, the single achromatic view and the double combination, known, perhaps, better as **Single versus Double Lenses.** the rapid rectilinear. It is not necessary to describe these, because they are no different to the ordinary series. Of course, I am not attempting to write a photographic primer. I should not care to meet anyone who learnt his knowledge of photography by the use of a hand camera, fanatic though I am called. These chapters are written for photographers, who, whilst they may be novices at hand-camera work, are certainly no novices in the art generally.

Considering that all the exposures are more or less rapid, a great question with the lens is its speed—that is to say, the minimum duration of exposure absolutely necessary. In this respect the double combination possesses an advantage—it will work at a larger aperture, and consequently requires less time for the exposure. A doublet will give fair results at about $f/8$, whereas a single combination requires $f/11$ at least. In this connection it may be noted that the desired subject has very much to do with the matter. For marine



ON THE CUMBERLAND FELLS.



studies and well-lighted landscapes, the single combination will not only be quite quick enough, but will give probably truer renderings of nature. It gives a much flatter field, and therefore the alteration of perspective and angle, which the stopping down of a doublet to obtain the same degree of sharpness generally leads to, is avoided. I have noticed, too, and no doubt many others have also noticed, the peculiar charm of distance and atmosphere that a single combination lens will produce in a snap shot. By stopping down the doublet to even $f/16$, the same degree of general sharpness is not obtained; whilst, if the aperture be increased, the distance may be more correctly rendered, yet it is too painfully fuzzy. I am no "naturalist." I should not care for my wife to be sharp, whilst I and all others in the distance were out of focus. At the same time, truth—or, at least, as near as one can get to it—should reign supreme, and certainly in this respect the single combination is ahead of the doublet.

A curious thought in my head appears to be naturally borne out by the foregoing remarks upon the single achromatic view lens and its powers. It is this. Whenever I read a very sentimental or pathetic summing up of a
The Doublet. judge upon one side—say the plaintiff—I expect a hard legal, but dead certain, sort of reference to the defendant, with the result, too, that the latter gains the day.

It appears as though I have done very much the same thing. Because now, when it comes to hard matter of fact, stern truth and all that sort of thing, it is easy to place the double combination so much ahead that the other stands but a poor chance. As I have said before, the "subject" governs the matter to a great extent, and I lay it down as a principle that the hand camera is expected to be ready and capable of securing any scene that presents itself—unexpectedly or otherwise. If not, where does its advantage shine forth? And at this point let me say that I consider the hand camera entirely an adjunct to, not a substitute for, the ordinary camera. We

hand-camera maniacs—we snap shot men, as we are so often sneeringly dubbed—only look upon the hand camera as a convenience, a means to secure negatives that would be difficult or more trouble to obtain otherwise. It therefore follows that the rendering of landscape or seascape, which may be better done in the ordinary camera, is not the sole purpose of the hand camera. Certainly not. We seek to illustrate life, incident, and character, as well as ordinary representations of nature, as we find it—or as we alter it pictorially. In this aspect the doublet possesses an immense advantage, giving good dense negatives where the single combinations would fail; giving, in fact, natural pictures where the single would only render supernatural—*i.e.*, *ghosts* of images. A doublet will give a fair landscape, and an excellent street scene, whilst the single combination would only prove useful in the former. Therein lies the superiority of the doublet. It is a much more “all-round” tool, and yet possesses additional qualification in one direction, which is more than every “all-round” tool possesses.

Then as to architecture and the correct rendering of perpendicular lines, a doublet is an absolute necessity for this. And though we do seek to illustrate character and life, if perchance a noted temperance orator was portrayed outside a public-house, it is hardly to our purpose that the building should be drunk. Rather the temperance orator, my readers think—but I say nothing about that. It is, nevertheless, true that for any view containing buildings—ancient or modern—the doublet is the only lens that can be used with any satisfaction. The following basis is, therefore, arrived at, *viz.*, that if one lens is to be used in the hand camera it should be a doublet. And this for two main reasons—first, that it will obtain pictures that, owing to the want of light or shortness of exposure, the single combination will not; and second, that it will render straight lines more correctly and with less distortion. This is the summing up.

The focal length of the lens is a subject that has in the past, and even yet occasionally appears to trouble the minds of hand-camera men. We are treated to articles upon long *versus* short focus lenses, quite regardless of the fact that both possess advantages and disadvantages. It is the same as with other features of the hand camera, a matter entirely of purpose. For scenery, mountains, and objects at a great distance, no doubt the longer focus lens is more suitable. On the other hand, for near objects, such as street scenes and everyday work, a shorter focal length is more adaptable to the arising circumstances. I say arising, meaning by that a focal length that is either more suited, or more readily adaptable, to the scenes that so quickly occur, but as quickly vanish. Absolute sharpness all over may or may not be desirable, that is a point I do not wish to discuss, at all events not just here. But a degree of sharpness is a necessity in hand-camera work. The fine effect of a print 10×8 or 15×12 by judicious focussing is not obtainable upon a $\frac{1}{4}$ -plate or 5×4 . That is, the same result may be easily obtained, as far as the different focal planes are concerned, but the effect to the eye in a $\frac{1}{4}$ -plate print is vastly different to that of the larger sizes. The same freedom in focussing is not permissible in a $\frac{1}{4}$ -plate print as in, say, a 10×8 . This is altogether apart from the question of what a hand camera is supposed to do, because some consider it merely a pictorial record producer, in which sharpness is the first consideration, whilst others consider it a means to obtain studies for artists. I am not dealing with the art side of the hand camera. My readers will please wait for the howl from our photographers with art tendencies at such a remark. As a friend said the other day, "What on earth do you hand-camera men mean by dreaming that a hand camera can ever produce anything worth looking at, except as a hand-camera picture?" We therefore arrive at this, that our results must be fairly sharp to be satisfactory, and it is here that the long-focus lens fails. A rapid exposure is a necessity,

and to obtain definition in the foreground and the distance with long-focus lenses means reducing the aperture, and consequently the speed at which we may work.

A term that has crept much into vogue of late is that of "fixed focus." By this is meant a lens that, at a certain distance, renders everything sharp and in one plane. Theoretically, if it is worth while discussing the term from this

Fixed Focus. point, it is absurd. If the lens is what is called "fixed focus" at 10ft., then at 8ft. focussing will be necessary, and so on. But taking the term in a practical sense, it means a lens of short focus, say 10 to 15ft., beyond which distances, of course, everything else is in focus as well. Every lens has a fixed focus point; even a 7in. working at $f/8$ would produce the same result at a little over 50ft., whilst if stopped down to $f/16$ the distance would be decreased to nearly one-half of that. The term, therefore, must be held to apply to lenses of short focus. Whilst upon this subject the following table, which I take from Messrs. Taylor, Taylor and Hobson's catalogue, may be found useful:—

Equiv. Focus.	Covering.	Fixed Focus at $f/5.6$.	Fixed Focus at $f/8$.
3in.	$2\frac{1}{2}$ sq.	9ft.	7ft.
4in.	$3\frac{1}{4}$ sq.	12ft.	9ft.
5in.	$\frac{1}{4}$ pl.	19ft.	13ft.
6in.	$\frac{1}{4}$ pl.		19ft.

Longer focus lenses are not quoted, as it is practically impossible to obtain sufficient depth of focus for the various purposes to which a hand camera is applied, if lenses of greater focal length are employed.

So far in favour of the short focal length of the lens, but the principle must not be carried too far. There are disadvantages to be considered and compromised with. If the lens is too short focus it requires the camera very close to the object, and therefore tends to dwarf the distance; and unless we can get at close quarters with the scene or object, the result is

unpleasantly small. From this point of view it would appear merely a matter of getting near enough. But that, as anyone knows who is familiar with the use of a camera, is not always easy, or even possible. To mention only one instance, where the photographer is upon a pier or headland with the intention of securing passing steamers, yachts, or boats, he will find his shots come out annoyingly small as regards the principal objects sought for. And how often it happens, not only at the seaside but in many other places, that the camera is perforce fixed at one spot, regardless of the consequent size of the main thing aimed at. But this is not the only disadvantage of using too short a focal length, and the other is perhaps still more serious. I refer to distortion. The shorter the focus of the lens employed, the greater the risk of distortion of the straight lines of the picture. And here we do not possess the advantage of the man with an ordinary camera, because he can—to a certain, if limited, extent—correct this by the use of very small stops. We cannot do this on account of the rapid exposure necessary, though, as that is no object with him, he can readily insert $f/44$ or $f/62$ in the lens. We are compelled to work at $f/11$ or $f/16$, and must therefore keep an eye upon distortion in choosing the lens.

There are numerous so-called fixed focus cameras made, in which the lens is not only as we have already described it, but no provision is made whatever for any alteration of focus.

Fixed Focus

versus

Long Focus.

Like everything else in this life—at all events, this photographic life—it is not an unmixed blessing. The advantages may be set down as that of very great convenience in use and consequent speed. By this I mean the securing of scenes that might be lost if the focussing of the lens has to be attended to, in addition to the various other details of successfully using the apparatus, shutter to set, plate to get ready for exposure, flap or cover of lens to open, &c., &c., and a good deal of “&c.” with some patterns. But the fixed focus camera possesses one great disadvantage,

and that is the smallness of the principal object. Suppose that be a well-known beggar, or, in fact, a single figure of any sort, with a fixed focus camera a much smaller result must be put up with. I will give an exact instance of this to make the point clear. Those of my street studies taken with a camera giving the power of focussing to, say, six feet distance, give upon a $\frac{1}{4}$ -plate the figure of a man the full extent of the plate. In fact, many of them are large enough to cut off at the knees. But with a lens and camera which is set to be used at about twelve feet distance, it is impossible to get a figure—and the whole length of the figure too—larger than two-thirds of the plate, without rendering it out of focus.

So that with regard to a fixed focus lens as contrasted with one of longer focal length with focussing arrangement in the camera, it is only necessary to sum up the situation from the foregoing remarks. But for general work the focal length should run somewhere between five and six inches, which is about a happy medium avoiding the extremes, and yet giving fair results for all-round work.

The aperture at which the lens may be worked of course depends upon the light and subject. At the seaside $f/16$ can be readily used, but inland $f/8$ or $f/11$ is more likely to be required by the exigencies of full exposure.

Lens Aperture. Lenses are fitted that work at $f/5.6$, and one make I have used works at $f/4$ as the open aperture. As a rule, however, $f/11$ is about the best all-round stop. For views or scenes embracing any angle, or with objects at different distances, $f/11$ is almost a necessity. But for single figures, such as a beggar against a railing, or any subject in which there is practically no distance, the background being close to the figure, $f/8$ may be used with success, or even $f/5.6$. The advantage of these larger apertures lies entirely with the increased speed thereby gained, many results being obtained that with a smaller aperture would have been out of the question. The main point about this, however, is that this large aperture is not often demanded of the lens. At

the same time, if we possess one that will work at $f/5.6$, it can always be stopped down when required, whereas one with a full aperture of $f/8$ cannot be increased in speed.

The Iris principle diaphragm has proved itself a real boon as regards the hand camera, because by connecting a bar or rod to the outer portion of the mechanism, the diaphragm can be worked from the outside of the camera. In many cases, however, the ordinary stops are used, inserted as required by opening out the lens, generally in front of the camera, but sometimes at the side, top or bottom. Another simple system in vogue is a semi-circular piece of metal, provided with the correct apertures, and moved between the combinations, or across the front of the lens, by an attached lever.

After the lens the only other item of importance is the shutter, but this, unlike the former, does not admit of such general treatment, owing to the very great variety of patterns employed. In fact, beyond saying that it

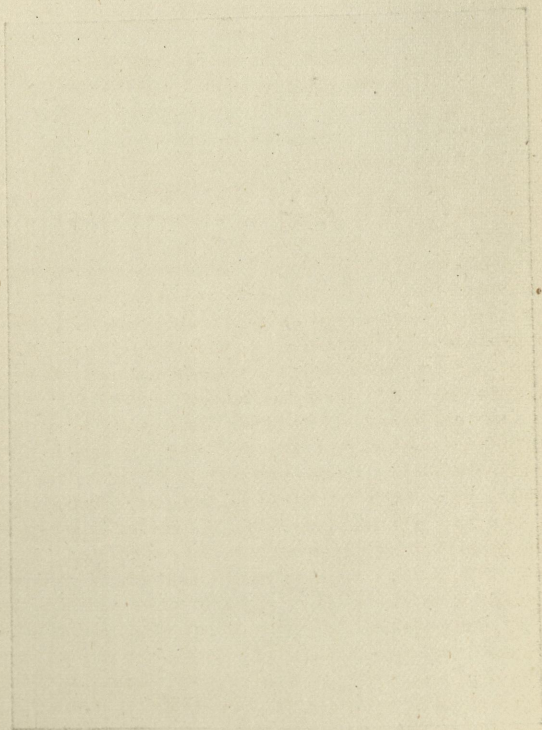
The Shutter. has to be kept fairly small, owing to the limited space available, there is no other general feature. Most of the well-known patterns are utilised, in some cases with modifications either to reduce them in dimension or to allow of their being worked from the outside of the case. In the direction of shutters, however, the hand camera has probably produced a greater number of patterns and modifications in twelve months than has been produced for use in the ordinary camera in as many years. The reason for this is twofold—first, the necessity for economy in the total bulk of the shutter, if it is a self-contained and complete one; and, second, the wide range of convenience given by having a fixed case to work upon instead of making the shutter self-contained. Many of our well-known shutters, even for a $\frac{1}{4}$ -plate lens, are somewhat bulky. This has led to cutting down the dimensions to make them adaptable to the hand camera, with a consequent gain in many cases to those who use the same pattern in their ordinary cameras, of both size and weight. But a still greater gain has resulted from the

many ingenious movements devised where the various parts of the shutter are attached to, or form part of, the case or camera itself; because, having a space of four or five square inches, in which the designer may roam at his own sweet will, placing one joint here, a spring there, and so on, a great opportunity is afforded him of obtaining something convenient, and fuller scope is obtained for inventive genius. This is one benefit that has accrued from the hand camera, because many of these ideas have been embodied into our ordinary apparatus, and whether a man be a confirmed anti-snapshottist or otherwise, he is receiving indirectly, benefits from the introduction and success of the apparatus he may pretend to despise. In perhaps the majority of cases, at all events in the better-class cameras, it is required of the shutter that it may be set and discharged and the speed altered from the outside. In most automatic changers, too, another feature has to be attended to, viz., a means of covering the lens aperture whilst the shutter is being set. Because in these there is always a plate ready for exposure, to which, without some special means of covering, the light would have ready access when the shutter is wound up. This is accomplished in several ways. A plain shield, possibly working inside the camera by a small lever on the top or at the side, is sometimes used; this, however, requires special and individual movement before setting the shutter. This is simple in working, but adds to the sum total of movements requiring attention, and is one very likely to be overlooked. A better form is that connected with the shutter itself, which passes over the lens itself at the same time the exposing shutter does, thus making one movement effect both purposes. Such movements, however, are not necessary with the patterns of automatic changers that are so designed that the plate is taken from a reservoir for exposure and afterwards returned, because in these only one plate at a time is in front of the lens, and this is cleared away before re-setting the shutter for the next exposure.

There is another point that is worth slight notice, and that



"PITY THE POOR BLIND."



is what is termed the "everset" variety. And although I may bring down upon my head the wrath of those photographers who hate all improvements like poison, and who would sooner take ten minutes to arrange each feature, focus, stop, setting and speed of shutter, &c.,

**"Everset"
Shutters.**

rather than have any blessed new-fangled notions about their apparatus, I confess to a preference for a shutter that requires no attention beyond altering the speed for special subjects. Why a man should desire to wind or screw his shutter up in preference to a movement provided to do that very work is beyond my comprehension. It cannot be that of security, because I would sooner trust a methodical piece of mechanism than my own unmethodical head or memory. Now I am perfectly aware of an existing feeling, especially, perhaps, amongst some of our older hands, that these ingenious movements and conveniences are amateurish, or only for novices. Possibly the "You press the button, and we do the rest" principle has had to do with these, to me, antiquated notions. Whenever I hear it, my thoughts always revert to the old machinery *versus* labour struggles and arguments. And there is more of this feeling abroad than most people are, perhaps, prepared to credit or admit. I know my apparatus has often been despised, and myself sneered at for using an automatic changer, with an "everset" shutter. Perhaps they consider it is nice to have all these little points to attend to. I don't see it. There is sufficient left for me in the selection and composition of the subject, and the exposure necessary. Any other matters I want either done for me by mechanism, or made as convenient as possible. The "everset" movement is just one of these. How often we lose a good subject by finding that the shutter was not wound up after the exposure was deemed made. Possibly this may be found out at once, with the result that after a quiet little chat with one's self the plate is used again. But if the plate has been changed, and cannot be got

back, or, what is extremely likely, the fact of the shutter not going off has passed unnoticed, then in the dark room, out of the developing dish into a cold, hard world, goes one more unfortunate—to be afterwards cut down to a lantern slide cover glass. To what base uses may a plate descend!

The revolving pattern of shutter is often used, as the circular shape adapts itself to the square form of the case.

Shutter
Movements. Then the blind has numerous adherents, because it works with less noise than other patterns, is very light, and adds but little to the total weight. It is also very reliable. Some work between the combinations, but the greater majority by far work either in front or behind the lens. One objection to the usual pattern of blind is that no provision is made for giving increased exposure to the foreground. Now, in all hand camera work I deem that a very essential point, because working so rapidly, as we always do, the most beautiful cloud negatives are secured if only the shutter will permit of it. On the other hand, the modification should not be carried too far, or it may interfere with ordinary work. I have used one that in plain landscape, with background of high trees, or buildings, its effect was most annoyingly visible. Most shutters that move *across* the lens, except the blind, can be so arranged, the opening in the moving piece being cut unequally—that is, larger for the foreground. Shutters which have an up-and-down action are not adapted to gain this end. One of the simplest shutters upon any hand camera at present in the market is that which consists merely of a section of a circle, on the side of which are two long rods. As the one is pushed home, in its passage uncovering and recovering the lens aperture, the other takes its place, ready for the next time of use.

The release of a shutter—not so much the actual method, but its position—is a point worth attention. It is in firing the shutter that we may move the camera, and therefore one place or another must minimise the risk somewhat. Of course,

constant use of a particular pattern goes a long way to level up matters, but if we find one particular place easier to work we might as well have it, as start to practise

Shutter**Release.**

a new one. Let me say at once that I consider the proper place for a hand camera is down at the side, with the arm round it.

Holding the camera against the body in front, or up to the neck, not only attracts a great deal more attention from the public, but it is not in nearly so firm a position for work. We certainly should not try to attract the gaze of those around us, or one great charm of hand-camera work will very quickly vanish—absence of stiffness and consciousness of the presence of a camera shown in the faces and attitudes. So that with the camera in that position, the push or release should be on the side away from the body, in order that it may have something solid to withstand the pressure, slight as it is.

With blind shutters actuated by long strings the latter are sometimes apt to catch. This is certainly a drawback, and one has always to watch that the string is in a correct position to run home freely.

CHAPTER IV.

THE BOX CAMERA.

NOTHING could be simpler than the earlier forms of the hand camera. It consisted simply of an ordinary camera placed in a box or case, the back or top of which opened to permit access to the dark slide, and the front to enable the shutter or lens to receive attention. Of course, as time went on, modifications were made

Early Forms. to facilitate the working, some for considerations of secrecy, but most generally for convenience. Opening the whole back or lid of the case was minimised by a small door, which enabled the dark slide to be inserted and the shutter drawn. Then, for focussing, a small flap or door was arranged, to save opening out the entire back. The front next received attention, with the same end in view; the focussing rack was made to work underneath or at the side of the case and outside, and the finder came into use. Thus gradually the box camera became as convenient as it was possible to make it.

The next point was size and weight, a point that became of increasing importance as the use of the hand camera spread. The dark slide was made specially light, the camera itself was reduced down to a mere shell, and finally the case proper disappeared altogether, the camera itself being utilised for the purpose. This necessitated a focussing motion to the lens, which was accomplished in several ways.

I do not wish to infer that having arrived at this advanced stage all the earlier forms are now discarded, because it is not so. Some advantages are lost with the improvements that are worth consideration. The first of these

**Advantages
Lost.**

is that of using longer focus lenses when required for particular work. With the camera practically unfettered in the box, there is room for considerable extension to provide the necessary length of bellows. If not in the box itself the camera front can be racked out clear of the box. But this necessitates a big opening, practically the whole front of the case, so that the modifications referred to do away with this power. There can be no doubt that now and then we should obtain better results with a longer focus lens than we usually work. Take the case of a pure landscape. A single combination will probably give a much more pleasing effect than the doublet, for reasons I explained in the previous chapter. If distant mountains are part of the subject desired, then the ordinary short focus rectilinear can be replaced by a single combination, or a longer focus rectilinear may be advantageously employed. The ordinary rectilinear may be converted by removing the front combination and stopping the lens down to $f/11$ or $f/16$. But this would almost exactly double the focal length, and the question is, will the camera rack out far enough? If it be what is now so well known as a "double-extension" pattern, it doubtless will. But unless the length, and consequent bulk, of the box be increased to admit of extension at the back, it is imperative that the front allows some part of the camera to project. This power we lose when we study neatness and secrecy to too great an extent. The front must open right out, or the size of the case be increased at the back, to accomplish this object.

In reducing the size and weight another point crops up, connected this time with the dark slides. In some patterns the extra slides are carried in the body of the camera, which, whilst it certainly attains that object, adds to the trouble by

making the removal of the slides before use a necessity. An extra bag or somewhat capacious pockets are needed to provide a receptacle for them during the time the camera is being used. Not that this is in any way a very serious matter, but it is a point worth notice. Where bulk is not considered such a vital point, the slides are arranged for in the lid of the case or round the camera body. And another plan is to arrange them one behind the other at the back. This is not so convenient, as when the ground glass is needed they must all be removed just the same. In one camera I have, too, if the object be close at hand, say six or ten feet off, it is necessary to remove one slide, or even two, to allow the back of the camera to rack out far enough. But I only include this as a slight feature, because there may not be many which need this to be done.

And now as to the features of a box camera or one with dark slides, as compared to automatic changers. I must deal in a very general way with all these principles, because there is no one point equally applicable to all. I dare not lay down anything very definite, except in a general way as pertaining to the majority of patterns, because some one or other will turn up in an upsetting and disorganising manner. For instance—and I want to make the point clear—it is quite right to state that automatic changers do not give the power of focussing upon a ground glass screen. They do not, so far as the great majority are concerned, and the principle is to a great extent opposed to it. But there may be one pattern, or more than one, that gets over the difficulty, that bridges the gulf. I may say that one advantage of dark slides against magazines is that any particular plate may be exposed at will, whereas in the magazine patterns one must take the plates, like the Irishman did the weather when he lost his almanac, as they come. But it must be held to apply generally, because there are one or two automatic changers that permit of any plate

being used. And so on all through, probably the only definite and absolute rule is that if a flap covers the lens, the plate will not be exposed until that flap is removed. Really, now that I am in this maze of principle, I am not so sure of that even. This classification and principle will be the death of me.

The box pattern permits more readily of its use as an ordinary camera apart from snap-shots. It is more possible with it to see the picture upon a ground glass screen, to focus accurately, to gauge the required aperture, to even use a swing back; in fact, to use the hand camera just as we would our $\frac{1}{2}$ or $\frac{1}{4}$ plate apparatus. This, to some, is a secondary consideration altogether, it is so to me. Because if I want to do all this, I should not take my hand camera at all but should use $\frac{1}{4}$ plate, or 10×8 . At the same time it would not be just to close one's eyes to the fact, that occasions arise for pictures that do need all the conveniences of an ordinary camera, when the hand camera alone is the only tool at hand. It is then a case of doing the best possible with the latter. These occasions may be few and far between, but they do arrive at times, though in this respect a great deal of the urgency of the case is due to the worker or his particular fancies in the direction or choice of subjects.

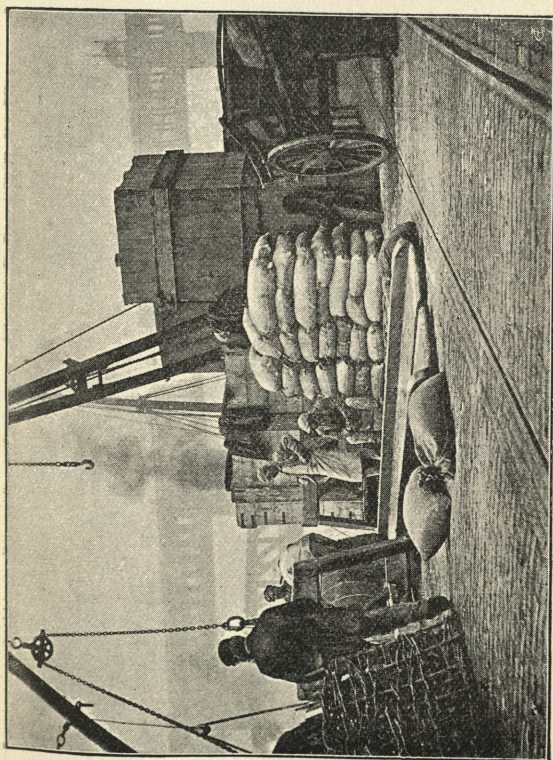
The distinctive features, however, of the box pattern—that is, one using dark slides, and, in fact, an ordinary camera covered up, are chiefly that of more control over the plates, and the better use of the camera for ordi-

Dark Slides. nary time exposure work. With dark slides, of course, any one plate can be used.

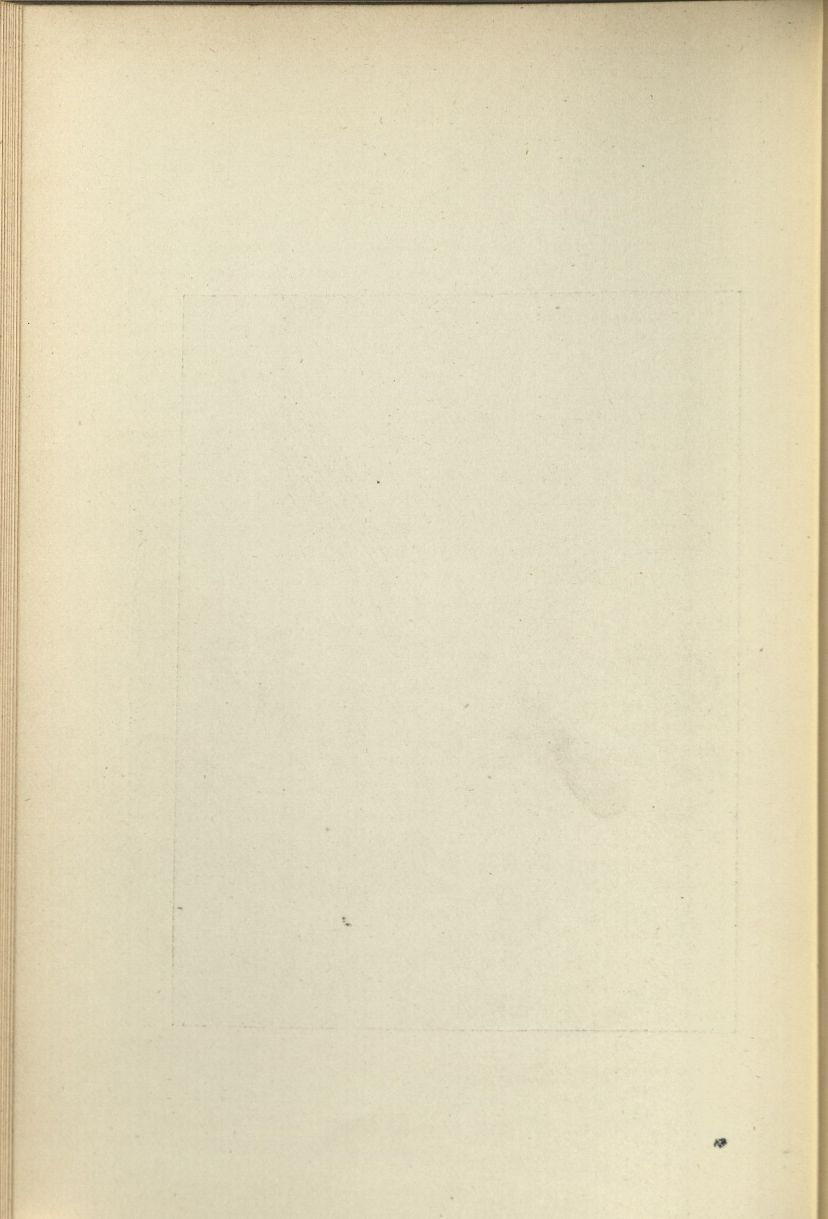
This is useful at times when two rapidities are carried. I don't know how others feel about the matter, but for my own part I much prefer to use a slow plate whenever it is possible, and yet—bother these yets and buts—there are occasions when a more rapid plate is certainly a boon. Dark slides readily permit of using either at our own sweet will. There is another point, too, and that is, one failure will not mar a whole day's work. If by any chance the dark slide be not

properly handled, the plate falls into the camera, or the slide by sticking, or movement at the wrong time, fogs the plate, only that particular one is affected. On the other hand, with an automatic changer, if a plate sticks or goes wrong, probably a rush to a dark room is necessary before we can go on any further; and as this is not always feasible, the dark slide has decidedly the pull in this respect. But do automatic changers go wrong, my readers ask? Certainly they are liable to, variance in the thickness of the glass plate, carelessness in filling up the reservoir, the insidious creeping in of dust and dirt, the weakening of a spring or catch, the failure of a movement, the curiosity of a non-photographer who presses all our buttons at random—and in this case we certainly do the rest as regards conversation when we find it out—the variation of atmosphere with its effect upon wood, the pulling of the wrong lever at the right time or the right lever at the wrong time, an accidental knock or shake of the camera, and—well, in truth, no end of mishaps which may make a plate stick. And when it does we've got to settle the hash of that one, because until that is done the others must, perforce, remain idle. Here the dark slide scores one, figuratively and numerically, because with it the spoilt plate does not interfere with the others. Only one plate is spoilt, whereas the automatic changer may spoil all that follow and even all that have gone before.

And lastly, dark slides are convenient in another direction, that of refilling. When we have a magazine or store of, say, a dozen plates to deal with, there is a great temptation to cater to the trade of the dry plate manufacturer, by using the last one or two upon subjects we scarcely care for, in order to be able to recharge the whole magazine. Certainly, with dark slides the same tendency may apply, but if it does the temptation is not so strong. The magazine takes some little time to open out, put in order, and recharge, and, as a rule, we do not care to do it until all the plates are used. I grant that when a complete dozen have to be changed the sheath, or in fact almost



ON THE QUAY. NEWCASTLE-ON-TYNE.



any automatic system, is decidedly quicker, but I now refer to replacing a few only. Dark slides will be found much more convenient in this direction. Many automatic changers require the full dozen plates to be in to work at their best, particularly those in which a spring behind keeps the plate in register. So that if we remove one or two only to develop they must be replaced. The double dark slide obviates this. And altogether taking the entire opening out of the automatic camera into consideration, the former is easier work unless the full stock of plates have to be dealt with.

The disadvantages of the box pattern are not numerous, consisting principally of two, viz., greater amount of work in changing the plate, and in doing so revealing the nature of the box or parcel. Whether the single or

Disadvantages. the double dark slides are employed after each exposure, the one used has to be withdrawn and another inserted, and this means, of course, also the sliding in or out of the slide shutter. This certainly takes more time than an automatic changer. In doing so, too, the interior is more or less exposed, thus enabling the general public to grasp its purpose readily. Even if the lid has not to be opened, the movements of the dark slide take sufficient time to attract attention. A minor disadvantage is, generally speaking again, that the box camera is bulkier to carry. True, as I have explained, some are very neat indeed, but they require an extra bag or case for the dark slides, so it comes to pretty much the same thing. Greater care, too, must be used to keep the curious from meddling with the camera, because dark slides are so easily opened compared with an automatic changer which they do not understand.

For a long while it has been a perfect puzzle to me to find amateurs, who are not content unless they have Ross or Dallmeyer lenses for their ordinary camera.

Cheapness. work, seriously discuss the *pros* and *cons* of a 10s. 6d. camera. What in all conscience do they imagine? If the whole thing complete can be obtained

for 10s. 6d., or even a guinea, what price the lens in it? But there is something deeper in the matter than appears at first sight, for they evidently consider a hand-camera as being so essentially different that they may really discuss the possibilities of taking a fair instantaneous shot with an apparatus sold at 10s. 6d. What the lens is worth nobody knows. Whereas, if they were going to use their ordinary camera, they would deem any lens under £5 or £6 incompetent. It is to me one of the profoundest curiosities of photography that photographers should so far forget that a hand-camera is merely a camera *adapted for use in the hand*. It is the same flesh and blood. There is the camera, the lens, the shutter, the plate receptacle, and, in fact, the identically same thing as we should use when occasion arises to turn our thoughts with the ordinary camera towards instantaneous work. And yet the expenditure of half-a-guinea or less is sufficient, they think, for a hand camera. Poor hand camera, art thou so despised?

Now, I'm not tilting a lance against the cheap makes. What I should like to do would be to break the lance on the heads of those who expect a 2s. 6d. lens to do in a hand camera what they would hardly trust their £5 lens to accomplish in their ordinary camera. Cheap hand cameras have their uses—I cannot say advantages, because they have none except as regards the purse or the pocket—for one thing, they popularise photography. Many an outsider would never have touched the thing at all, only that he thought it was so inexpensive. And from this he is dragged gradually into better things, he spends more money, he takes greater pains to produce results worth looking at, results that may be judged beyond the standpoint, "ah! very good indeed for a 10s. 6d. camera." Before he reaches this point, however, he has, no doubt, largely benefited the trade, the dry plate maker to wit. If this be read "sarkastic," it is not my fault. No, what I am driving at is not the outsider, but the full blown amateur who so incongruously wants a 10s. 6d. apparatus to accom-

plish things that were he to use his £10 outfit for he would deem his success a triumph.


Some of my readers may feel disposed to doubt my assertion, as to this curious conception of the hand camera by amateurs unfamiliar with its use. I should have done so myself a few years ago, but now—well, there, I'm used to it. I have had too many proofs of it to doubt for one moment the existence of these strange, wild, weird, weary, weak, warped, waspish—and wasteful—opinions. When a friend—who a short time ago bored you by discussing whether he should buy a "rectilinear" by so-and-so, the price of which was £5 10s., or a "symmetrical" by another so-and-so, at £5 7s. 9d., whilst all the time you know your own lens only cost £3—seriously tells you that he is thinking of going in for the "Never-say-die" hand camera at £1 12s. 6d., you are inclined to doubt his sanity. But we're going to change all that, we hand-camera men, because

"Needs must when the devil drives."

Please observe I mean nothing personal by this quotation.

CHAPTER V.

THE BAG CHANGER.

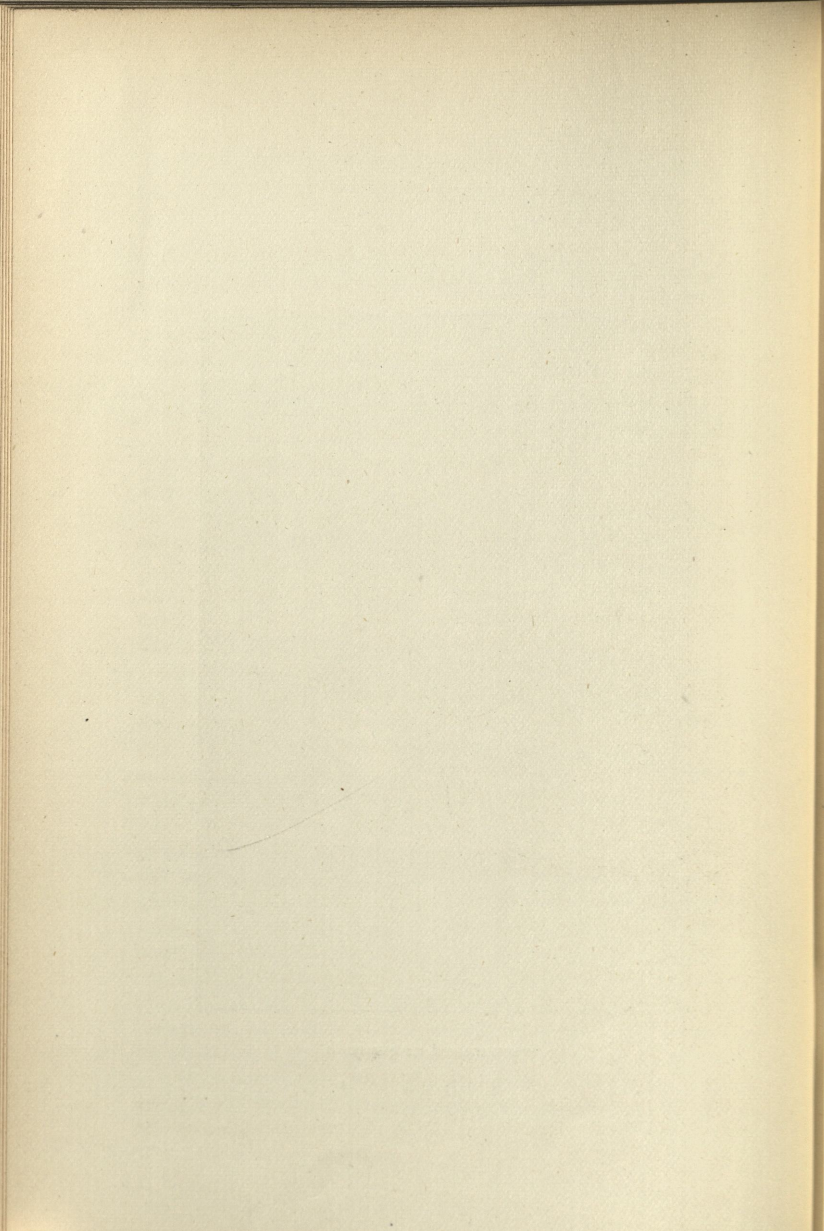
 HIS pattern is really a cross between the box camera and the automatic changer, because whilst the plates are back to back in a magazine ready for changing, they have yet to be dealt with individually by the fingers. It

The Bag. is for this reason that I do not class it with the automatic changer, for in these latter a spring, a lever, or some movement effects the change without the fingers handling the plate at all.

Let me say at the outset that the bag, as a method of changing the plates, is very widely used. It is evident, therefore, that it has some good points, but these will be entered upon later. To describe the arrangement is a simple matter. It consists of a plain box, which is usually formed by the case itself, though sometimes it is separate and distinct, into which the sheaths are placed facing the lens. A slight spring at the back keeps the front sheath up to the register. Upon the top is fitted a bag constructed of some opaque material, which is at the same time flexible enough to permit a single sheath being grasped by the fingers from the outside. Underneath the bag, but on top of the compartment, is usually covered over except at the two ends, where are slits provided of sufficient size to permit the passing of the plate. At the bottom of the case is a lever, resting underneath the sheath, which serves to raise it sufficiently high in the bag to permit of a more convenient grasp by the fingers. And for the same purpose the front slit is either wider than the back, or a half-circle is cut out of the wood.



A PENNYWORTH OF FORTUNE.



In use, the lever is first raised, the sheath grasped and lifted out by the fingers, outside the bag of course, and then replaced in the case, but this time at the back of the others. In doing this, the next plate has been pushed forward by the spring and is ready for the next exposure. There is a point worth mentioning here, and it is that the full number of plates remaining in the camera all the time, there is no unequal tension upon the spring. The pressure remains the same from start to finish. I mention this because in some cases, where the plates have to pass to another chamber, the pressure varies at each change, and occasionally the spring weakens towards the last plate to such a degree, that it is really not so reliable as it ought to be.

The method is very easy to describe, but in actual working is not quite so convenient as it might be deemed. We, of course, want neatness, and that means curtailing the size of the bag. Even if

**Actual
Working.**

that object were not sought after, the bag would not be much easier to work, however large. As it is, it is large enough for the purpose, but no larger, and as the fingers have to move the plate from one end to the other, it follows that the sheath must have sufficient room in the bag to enable it to pass clear above the others. But when in this position the bag is generally taut, and this requires a little practice to work well, or, at all events, to do it quickly. The folds of the cloth, too, when the plate is either half-way up or partly down, are apt to get in the way. In some patterns, also, care must be taken to push down the lever before removing the plate entirely from the front, because either it will not afterwards assume its proper position, or in pushing it home it is liable to scratch the film of the new plate.

The bag system has some strong points. That is proved by the number of hand cameras that adopt it. It is certainly extremely simple, and there is very little that can be subject to chance derangement. Another feature of importance is that it takes such a very small amount of space, being less,

in fact, than most automatic changers, and considerably less than dark slides. The bag itself, being de-

Advantages.

signed to fold neatly into a square, is of no consequence as regards space, so that the case need only be large enough to hold twelve sheaths, with about a $\frac{1}{2}$ or $\frac{3}{4}$ inch space on top for the bag. Finally, this system affords an easy method of replenishing the stock of plates; all that is needed being some arrangement in front to close in the plates, and to keep them safe from light until opened for development. The case is simply lifted out, and another one inserted. It is quite true that other systems of magazines could also be treated in the same way, but the bag gets ahead on the questions of size and cost. Where the method of changing is in any way elaborate, it usually means bulk, and certainly to carry two or three extra magazines about with one upon a day's trip would entail too much portorage to suit the majority of us. The expense, too, would be great, as these ingenious movements cost money in their manufacture, to say nothing of patent considerations. Whereas for the bag pattern, even one of the best made, extra supply boxes, I find, are listed at 35s. each.

Altogether, then, this method of changing the plate may fairly be stated as one of the most simple, and least likely to get out of order. And though I do not like a bag at all myself as I cannot stand the fumbling about of the fingers, it yet stands in the front rank certainly for simplicity, and, to a great extent, for neatness.

There is one point that should be studied by the purchaser, and that is the shape of the bag, and the material of which it is constructed. For in this lies, perhaps, the whole secret of ease in changing. I am probably quite

Shape of the Bag.

within the mark in stating that a great number of hand camera workers have been prejudiced against the bag purely and solely by the bad construction of some of those issued. Any bit of cloth, made up into the easiest shape at hand, or made

without regard to shape at all so long as it forms a bag, will not do at all. At least, it will not be nearly so convenient in use as a properly-designed one would be. The actual shape advisable is beyond description, but the material should not be too soft and flexible, or it will hang round the plate too much, and fall into troublesome folds. At the same time, of course, it must not be too stiff. In fact, it wants to be just exactly right, as do a good many other things.

CHAPTER VI.

THE AUTOMATIC CHANGER.

IF I assert that in the direction of changing methods for the hand camera more ingenuity, skill, and mechanical knowledge has been directed, more time spent in experimenting, more money spent in patents, than any other branch of photographic apparatus during the last three or four years,

Ingenuity and Skill. I do not think I shall be going too far. We have gained considerably and unquestionably by the thought and enterprise extended in this direction. Not only the hand camera worker, but, in many things, even the anti-snapshotist must allow improvement in the apparatus he uses, which should rightly be credited to the thing he affects to despise. And the matter is not yet done with, because the automatic changer has come to stay in its general principle, but not to stay in its particular details, and improvements are bound to go on. So that apart from its own usefulness and attractiveness, the automatic changer will, practically, effect improvements in other apparatus.

The advantages of this pattern hand camera are great, but like everything else it has its drawbacks, and these points I purpose now discussing. Having dealt with the bag-changer, however, which embodies the advantage of carrying a store of plates, to say nothing of patterns having six or more dark slides, both effecting the same results as regards the number of exposures at command, I need say nothing more upon this

point. Some automatic changers, however, possess a distinct advantage over dark slides in at least three directions, viz.—Saving in total bulk and weight, greater safety for the plates, and quicker changing. It is only, however, in the latter that it may be said to in any way improve upon the bag-changer, and even only in some patterns. Dark slides must be more or less bulky, and consequently heavier. If we consider that the case in which the plates are stored is usually very little larger in dimensions than twelve plates—even with sheaths the increase of size necessitated is not great—the gain over six dark slides, of however light and neat a pattern, must be apparent. If the method of changing adopted be the simple well, or a similar principle, the total size of the camera is no larger than the usual box pattern. Where, however, double reservoirs are needed, or where, by reason of the movements required, space has to be provided, then the automatic changer gains nothing in respect to bulk. Indeed, in some patterns it is quite the other way.

Dark slides are not so safe as regards freedom from the entrance of undesirable light. At least, I put it in this way: In the automatic changer we have one box to deal with,

in which are our twelve plates, but each dark slide is a separate box, and each requiring care in use and storage. Another point is

Safety.

that dark slides are so easily opened by the non-photographic public, whereas the automatic changer is sometimes a puzzle with its many levers and knobs. Of course, I know dark slides can be locked away either in the camera case itself, or in a separate one. But that is not what I mean. The automatic changer generally *must* be locked, or, at all events, we imagine so, whereas dark slides—well, why should we take any more trouble with them than we do with those of our $\frac{1}{2}$ -plate or 12×10 ? It is like a lot of other things in this life, that we are compelled to do, we do cheerfully, that which is not obligatory is often neglected. Some patterns really require locking properly before they can be used, but it is not so

with dark slides, the plates being all apart from the camera in their own compartments we imagine them safe.

As regards quick changing the dark slide, however, has no chance, and even the bag-changer must fall into second place beside some of the automatic changers. Take, for instance,

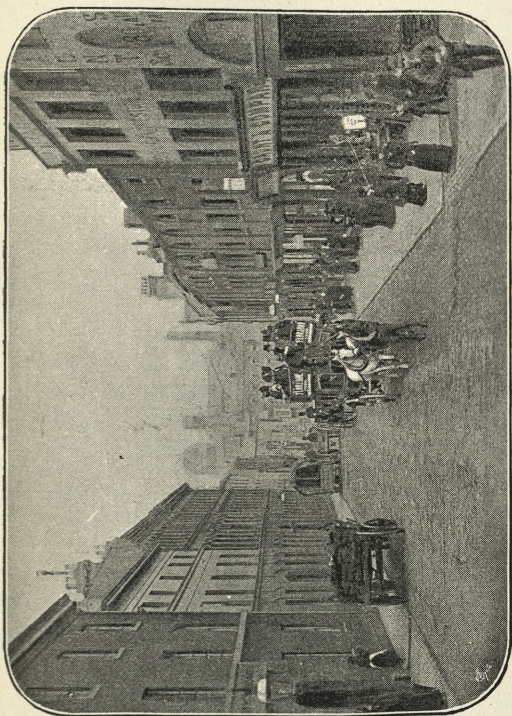
**Quick
Changing.**

the double-grooved reservoir patterns. A turn of a milled head about $\frac{1}{4}$ inch is all that is necessary. Or take the well systems, where a movement quite as slight releases the exposed plates into a receptacle beneath. What could be more simple, what quicker to do? But is quick changing a vital point? may well be asked. In certain cases it certainly is, and anyway, if the quick changing does not necessitate any sacrifice of other convenience, or of other feature, it might as well be always at hand. Those who have used a camera—as I have—on the tops of 'buses, steam trams, and in small boats, where to stand up is somewhat peculiar; above the head at arm's length in dense crowds; on the top of a tent pole, where one hand is required to "hold on" like grim death; upon a yacht in a stiff breeze, when somebody else has to hold the manipulator; from the seat of a bicycle; and even when swimming in the water; I say, those who have used it under these circumstances know full well the advantage of a quick and easy changer. (The two terms are not exactly synonymous, though the difference is hardly worth pointing out) It is not only the power of being able to do it readily, but that of accomplishing it in very awkward positions, and when the greater part of the attention is, perhaps, more directed toward the risk of accident to oneself or the camera, than to "snap-shooting."

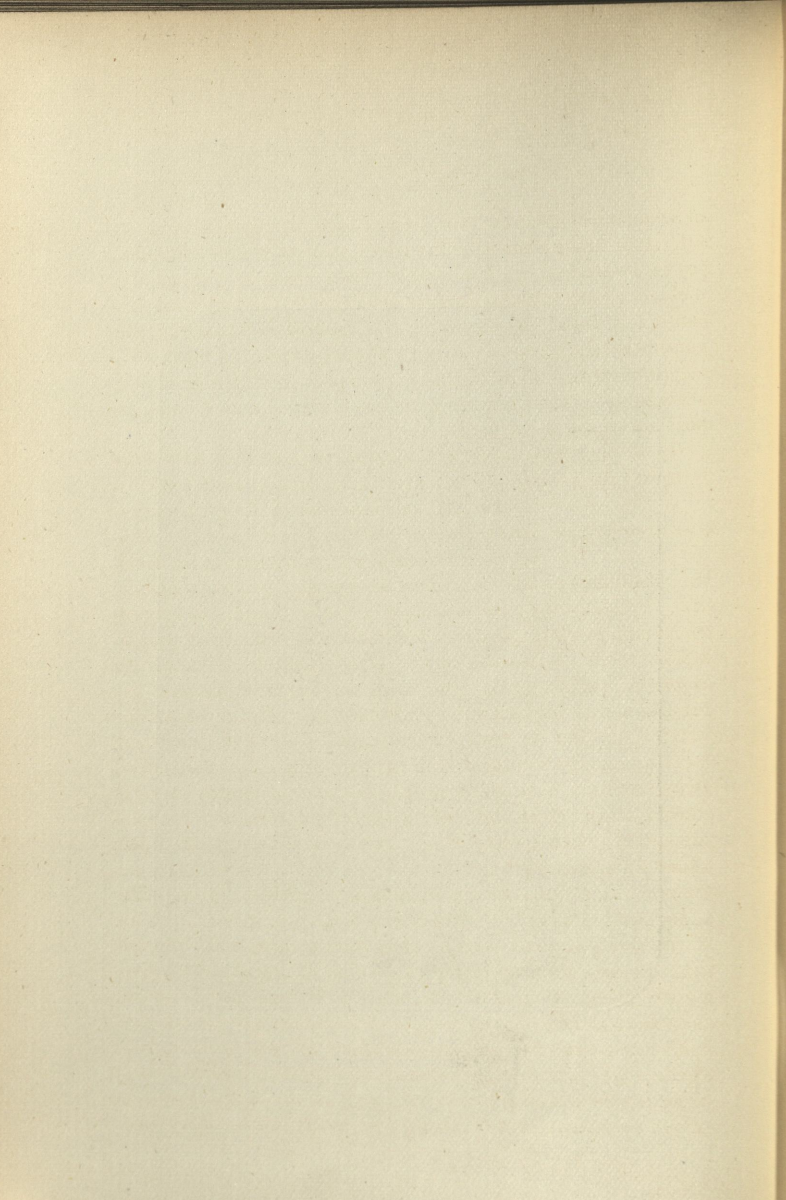
Quick changing and simplicity of the method carries with it another feature, one which, for lack of a better phrase, I

Secrecy.

should term secrecy of changing. Neither dark slides nor the bag can compete at all in this direction, for they both need some amount of opening out and display of action. The mere turn



TAKEN FROM TOP OF AN OMNIBUS



of an outside button or lever does not attract any attention at all. It is bad enough in many cases, such as in street scenes, to be understood of the public when actually taking the picture, so that drawing further attention to the fact that "a camera is about" by means of the method of changing the plate is surely not to be desired. If really truthful representations of street life, its incidents, its bustle, and its characters, are required, the "standing to be photographed" kind of positions must be avoided.

Now, my readers must not imagine, because they have seen it stated in *Photography* or elsewhere, that I used either a certain pattern of camera or a certain make, **Disadvantages.** that a distinct bias must perforce rest. It is not so, and now I will endeavour to set forth the disadvantages of the automatic changer, generally speaking. Probably the first is that of a plate sticking, involving the complete stoppage of any further work without recourse to a dark room. I use the term "plate sticking" to apply to anything happening to disarrange matters and prevent the further use of the camera. The plate may slip or break for that matter, but the result is the same. Now there is nothing more annoying than for this to happen, as it often does, miles away from any dark room, or just as some particular event is coming off in which the user has great interest, or for which the special journey was made. The dark slide certainly gets ahead upon this point; one plate may be blundered over, but the spoiling of one does not involve a complete collapse. The slide merely has to be reversed, or a fresh one inserted. This is decidedly a point worth study and comparison, because, trusting, as automatic principles do, to a mechanical movement covered up in a box, to effect a change that with the dark slide is done by the fingers, the liability to disarrangement must ever be present to a more or less great extent. Springs go wrong, they weaken and break, leather bands stretch, rubber wears loose or it hardens, the rack throws the groove registering out of truth, and many other nasty littl

things are likely to happen. True, the same things go wrong with an ordinary camera, but the difference with an automatic changer is that they cannot be got at without opening the camera, and in some cases not even then unless it be taken to pieces—I can still go on—sometimes not even then unless sent to the maker.

Another disadvantage is the necessitated use of the plates in strict sequence. This, however, is met in a few patterns, but in the majority as the plates are put in the reservoir so must they be used. I have myself found this

**The Speed of
Plates.**

a drawback. There are many occasions upon which, perhaps, the use of either a slower or a faster plate would be apt to give us a better result. But it cannot be done, unless it is possible to presage the exact order of taking and subjects chosen. In that case the plates could be arranged specially in the reservoir. I have, however, never been so situated myself, and doubt its feasibility very much, except on very rare occasions. It may be said that altering the stop would answer the purpose, but if that be done the picture itself is altered. Of course, those who lay down the law that the *Ultima Thule* of hand-camera work is absolute (and as I have termed it painful) sharpness, then the stop would perhaps answer the end. But I very much object to being so dictated to, and deny that the sole aim of the snap-shotist is to produce complete and infallible sharpness. I want to do with my hand camera as nearly as I can everything that is possible with an ordinary camera; and therefore I don't want mountains that are at least five miles away as the crow flies, to look as if they are at the bottom of my back garden. Nor do I want a vessel lying at anchor in a river to appear as if stuck by a dab of paste to the trees on the other bank. My point is briefly this—where sharpness destroys distance, and thereby destroys beauty and truth, it is wrong, absolutely wrong. If the sharpness does not do this, all well and good, I agree to it. But that absolute sharpness is the only thing a hand-camera man ought to aim

for is arrant nonsense. If he loves the apparatus he uses, he will not be misled by any such parrot cry.

And finally, a minor drawback. In automatic changers there is usually a plate, ready for exposure or already used, in position in front of the lens, which any movement of the shutter or lens must affect. Any accidental

Meddlers. opening of the aperture, or, what is worse, the wilful opening by an outsider, has a disastrous effect. Dark slides are safer in this respect, because, when the shutter is closed or when the slide is removed from the camera altogether, the meddling fiend can do what he (it's hardly gallant to say "or she") chooses. The plates are safe whatever happens to the camera or its working parts.

CHAPTER VII.

THE AUTOMATIC CHANGER—Continued.

THERE is only one other minor point of disadvantage, which is that with many automatic changers focussing direct upon a ground glass screen is not possible, owing to the construction of the changing method employed.

System of Changing. The particular methods or systems of changing must next receive attention. These may be placed in three distinct classes as follows:—

Grooved reservoirs, travelling or otherwise.

Lever movements.

The well, or plain reservoir.

These are sufficiently distinctive to admit of classification, in spite of the differences in actual detail. Probably of these the simple well is the least likely to derangement, and next comes the grooved reservoir.

The Well. The lever movements in that respect certainly are the most likely to go wrong. Also, as regards bulk and space, the well keeps ahead. But both the well and lever movements necessitate the use of each plate in exact order. Whereas some patterns of the grooved reservoirs admit of the use of any plate, and in others it can be managed by a little dodging, such as a shake or reversing the box.

It may be interesting to my readers and patentees generally to know that, as far back as 1867, a camera was patented in America at all events, if not in England as well, which, though not a hand camera at all, contained the germ of all the grooved reservoir patterns. Indeed, I can go further

**Grooved
Reservoirs.**

than this, and assert that one of the patterns upon the market at the present time is an exact *facsimile*, as regards principle, with but slight alteration in detail. Possibly even the one of 1867 was not the first, but 24 years is quite far enough back to go in such a recent thing as photography. The camera was a plain box carried by means of cord or rope. At one end the lens was placed, and at the other a pair of stereoscopic lenses, through which the object was seen and focussed upon the ground glass, which was placed about the middle of the box. Upon the top of the main box was a smaller one, containing the plates in grooves, practically a travelling store box. In the top of the main box a slit admitted the plate into the exposing chamber. When not required this slit was covered by the focussing screen, and the latter also served to keep the plate in register when in position by being pushed home. The plates were kept tight in the reservoir by small springs inside, pressed by screws from the outside, one for each plate. This was rather an elaborate arrangement, which we nowadays avoid by closing the box with a lid. However, as I have before stated, here was the grooved reservoir idea exactly, and as so many of our present-day photographers, especially in the amateur ranks, do not date their knowledge of matters photographic back more than five or ten years, this may be news to them. In 1867 a camera was made, and used with a travelling grooved reservoir, which dropped the plate into position, and upon reversing the camera it fell back into its groove again. Focussing upon a ground glass screen was provided for as well.

In modern reservoirs the plates are sometimes in sheaths, which are a great help to the correct working of the instrument.

Plates have often sharp or rough edges, to say nothing of faulty cuttings of which we constantly see

Sheaths.

samples in the makes turned out. Whether the grooving is of metal or wood, such plates have a tendency to catch or stick—of course, worse in the latter. The plates also may be too small, as happened to a batch of two dozen I took out last week. Things went wrong, the air seemed heavy, the world dark and dismal, and I came back cross with everybody and everything. Why? Well, my very first plate stuck. Upon going into the dark room, however, the reason was soon apparent, the plates were rather small, and they had in five or six cases slipped out of the grooves. Now with sheaths, differences in dimension are met by the protecting edge, and bad cutting or rough edge is not so bad, as it is the outside of the sheath that runs down the groove. On the other hand, there is the extra labour involved by the insertion of the plates into the sheaths, and extra thick glass sometimes causes annoyance. But this is in the getting out, not the getting in, or exposure of the plate. I have spent much time in getting plates out at times, and when a knife has to be requisitioned, breakage or a deep scratch has disposed of "one more unfortunate." Occasionally I have made sure the plate was worth the trouble by developing first, inserting sheath and all in the tray, and judging at the earlier stages if the result was likely to be of any use. If it was, then I took my chance of density by long soaking. If the glass is too thin also, a grinding action goes on inside the sheath, causing pinholes galore in the negative. Altogether the sheath question may be summed up as six to one and half a dozen to the other, there is very little to choose. Sheaths, however, add to the weight, and that is, perhaps, the most reliable point of comparison.

An advantage possessed by those forms of grooved reservoirs in which the plate is returned to the same box, is that of being able to use a ground glass focussing screen, because when the plate is safely back in its groove, and the opening or slit

covered, there is nothing to fear from the entrance of light, however bright. This, however, generally

Focus Screen. means tilting or turning the camera right over, so that if this be objected to, not so much upon the question of the trouble as upon that of remembering to do it, the advantage gained is to some extent counterbalanced. But with a lever movement, or with the well, focussing on a ground glass screen is not possible.

The power of using any desired plate is given by some of the grooved reservoir patterns, and by power in this case I mean those distinctly adapted to the object, not those that by dodging can be made to accomplish the same end.

**The Lever
Movements**

Need but little attention, as each differs from the other so much that only when we come to the detailed description of each can they be properly dealt with. With the exception of one pattern, however, there is less to do in changing with a lever movement than with a grooved reservoir. The latter need in most cases two or three movements, or they require the camera altogether to be turned over, or round, or on one side, or down the next street. The exception is that in which one grooved box travels over another, so that the mere turning of a milled head is all that is necessary. With lever movements, too, some amount of decision in working is necessary, as they almost all need a jerk, or at least one definite motion, not one by degrees and easy stages. It is in this direction that failures occur most generally. Another minor objection to these levers is the way they bang the plates about, as a friend remarked to me after I had changed one, "How did you spoil that one?" I told him it was all right. "Well, why do you jerk the life out of it then?" he asked innocently.

The principle of this is very simple. The plates are stored one behind the other, usually in sheaths, their correct position being kept by a spring or springs at the back. As each plate is pressed forward into correct register, the well possesses a

The Well.

slight advantage over the grooved reservoir, because in the latter there is generally some play allowed in the groove. One or other form of catch is present, which holds the plate or sheath firmly until it is required to change. All that is necessary, then, is for that catch to release the exposed plate, when it falls into the bottom of the camera—into a well, in fact, hence the title of the division. This is accomplished in a great many ways, but all attain the same end; the plate is kept in position for exposure, and then allowed to fall into a reservoir.

The thing I don't like about a well is the terrible jarring the plates receive in falling, which is a splendid advertisement for Pinholes and Co., nor do I much care for the loose way in which the plates lie in the well. They shake about all the time the camera is being carried, and they make me nervous. The

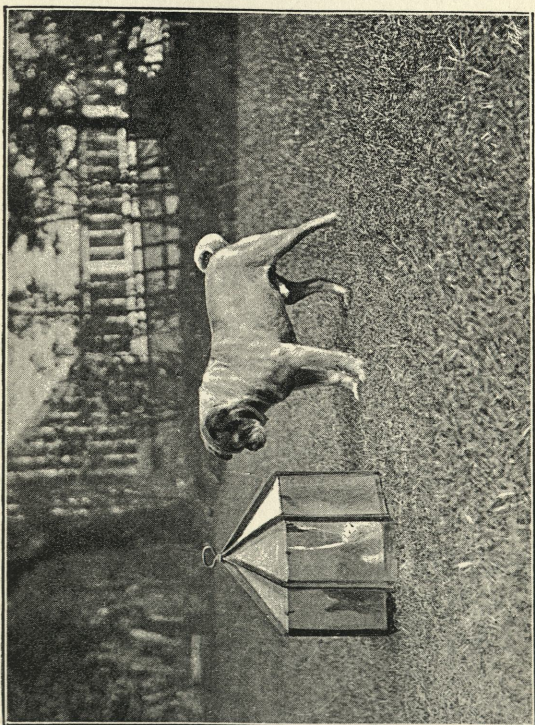
old chestnut is—

“Before taken, to be well shaken.”

Well, we simply reverse that to, “After taken, you can stake your last Everclean collar they'll be *well* shaken.”

The strongest feature about this system is certainly its simplicity, because there is so little that has any chance of going wrong. It is a most peculiar and fascinating thing about hand cameras how easily they go

Simplicity. wrong. With one that I have personally worked without a hitch for months, it will just turn stupid when I commence to dilate upon its beauties and simplicity to a friend. “All you've got to do is to pull this lever, press this button, and there you are, the plate is changed,” I say. And my friend replies, “Very clever, very ingenious, very simple, but the plate has *not* changed.”



"I WISH I COULD GET AT 'EM."

11 12 13 14 15 16 17 18 19 20

CHAPTER VIII.

THE ROLLER FILM CAMERA.

THIS is, of course, a variety of the automatic changer, but is sufficiently different to be described alone. With the majority of hand-cameras, cut films can be used in place of plates, especially when sheaths are used, as it is only necessary to place at the back of the film a piece of wood or cardboard to keep it tight and up to register. I have not dealt with this matter before, because, practically, cut films and plates are identical as regards nearly all patterns, whether of the box, bag, or automatic changer. The continuous length of sensitive film wound upon a roller is, however, a different matter altogether. It is generally used in an ordinary roll holder, with the box pattern of camera, that is, one using dark slides. Even with these, the dimensions or construction of the particular make may preclude its use, unless the camera or case be specially designed.

Before entering upon cameras specially made for roller films, a few remarks upon the film, its advantages and features, must come first. Its strong point is decidedly that of convenience in use and extreme port-
Rollable Films. ability. A roll of film for, say, forty $4\frac{1}{4} \times 3\frac{1}{4}$ inch pictures is certainly a feather-weight beside three dozen plates, to say nothing of the reduction in space also gained. A piece of paper $3\frac{1}{4}$ in. wide and, say, about 11ft. long, it will be readily surmised, weighs the merest trifle, and when rolled tightly occupies but very

little space. And the convenience of it—well, there's forty exposures within your grasp without a change of any sort. Supposing you are going abroad, especially if it be to a somewhat uncivilised spot—I don't mean such places as Paris, the Rhine, Switzerland, &c., where porters are plentiful—just consider how readily material for 1,000 exposures could be carried. They would occupy no space, and add but a pound or two to the weight of the luggage. There is another point, too, that of breakage, an item that one has to consider when knocking about away from home. The film roll can be dropped from the top of a mountain to the bottom, and it would not be much the worse, but let a box of plates fall from an ordinary table, and—I'll draw a veil over the result.

In my original article in *Photography* I pointed out that “The old paper film, called the stripping film, possessed a very peculiar advantage, viz., that the roll could be changed in broad daylight. Don't smile, it is quite

**Daylight
Changing.**

true. As the paper is tightly and symmetrically rolled over a spool, if it be exposed to the light the action could only go so far through owing to the opacity of the paper. Of course, now, with the transparent film, that advantage is almost swept away, and it is rather to be regretted. I will depart from what I said about describing “things that be” for just a moment, to point out that it could still be done, either by the makers of the film or by the purchaser. Two ways suggest themselves—the first, to attach to the end of the sensitive film sufficient thin opaque paper; or, if that be difficult, to expose, say, two lengths of the film to good light, avoiding any image, either by pointing the camera to the sky or exposing the film by itself, then developing a good, dense, impenetrable nothing, which when dry will be rolled over the ordinary film. There is no practical difficulty, though it would be troublesome. Is the game worth the candle? Well, that is hard to say. If the candle does not cost too much it certainly would, but otherwise we shall have to con-

sider it over. There are emergencies when one would gladly sacrifice two or three exposures in order to obtain a fresh roll of forty ready for use. I think, however, if one of the above plans was adopted, the changing done in the shadiest place available, and as quickly as possible, no sacrifice need be made at all. However, I only throw this out as a suggestion." This has now been done, thin black paper being used, and quite a new series of rolls placed upon the market.

The roller film pattern must surely have some disadvantages, or, considering what I have said about **Disadvantages.** its good points, it would practically rule the roast. There are several, but they are all very minor ones indeed.

- 1st. Cost of the film.
- 2nd. Film perhaps not quite so reliable as plates.
- 3rd. Slightly more trouble in developing and drying.
- 4th. Seductiveness.
- 5th. Prejudice.

I do not think that notice need be taken of the chance of the roll-holder getting out of order, because the risk is no greater than with automatic changers. Nor is the result worse, because in both cases a brief journey to a dark room is all that is required.

- 1st. The film costs, roughly speaking, a fourth more than the ordinary extra rapid plates.
- 2nd. There can be no doubt that, up to quite recently at all events, unpleasant markings occurred. But the firm say these are now entirely avoided, and certainly as the experience in manufacture is gained by time, there is no reason why the film should not be quite as free from blemishes of any sort as are plates.
- 3rd. To one using films constantly, this objection would not apply, but as I consider a hand camera an accessory to one's outfit merely, it would doubtless often happen that films would be used in it, but plates in the ordinary run. In this case the thinness of the film would prove

a little more troublesome to work. I must add, however, that the power of developing several films together in one dish is a powerful aid in getting through a big batch.

4th. Seductiveness is rather a sarcastic point. I mean that the power afforded of 60 or more exposures has a great tendency to make us fire away unnecessarily often. Now every reader will at once say, "It's quite right, but it doesn't apply to me." Oh yes, it does, my friend, for the temptation is too great for ninety-nine out of every hundred workers, and the hundredth man will require considerable hunting out.

5th. "I don't like your films; plates have been good enough for me all these years, and I'll stick to them." That's the kind of prejudice I mean. Does it exist? Ask a few of your friends and see.

CHAPTER IX.

THE REFLECTOR PRINCIPLE.

BY "reflectors" I mean, of course, those which give not only the full size image upon a ground glass, but the exact focus as well. Practically it amounts to a full size finder, working in conjunction and in exact register with the lens.

Many of our workers express their unbelief in finders altogether. I say "express their unbelief" with due intent and purpose, for I have not yet found any one sufficiently enamoured of this method of working to strictly abide by it. But for the present it is sufficient to say that there are

A Full Size Finder.

hand-camera men, who demonstrate either verbally or in the photographic press, their dislike and non-agreement with a finder of any sort or nature whatever. The reflector camera is exactly at the other end of the scale, and is the best example of a diametrically opposed opinion. Does any hand camera exist which, offering special features of its own, has not its supporters? Certainly not; hand camera manufacturers are not philanthropists, they are commercial men of business, and only make cameras which sell. As they sell there must be buyers, and, therefore, there must be plate spoilers, as some of our sarcastic anti-snap-shottists would term them, who are weak-minded enough to use to the fullest the advantages conferred. Those who prefer working without a finder of any sort are in a very miserable minority, with but the most threadbare argument at command. They remind me of the man who declines to use dry plates, because they are bought ready prepared, or because the glass was made by someone other than the user of it.

But I must leave these anti-finder men and deal with those who prefer to use them—wicked though they be. And the question comes naturally enough, "What is a finder for?"

If one is necessary at all, why not have it as perfect and complete as possible? Exactly so. This brings the reflector principle upon the scene.

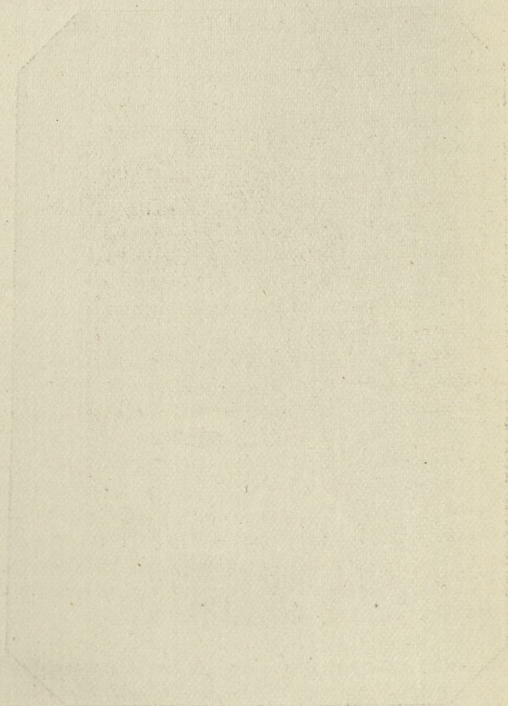
Though there are two kinds, the feature of both is that, not only is the view seen exactly as it ought to appear on the plate—I say “ought,” because we all know whatever the camera used may be, that the scene on the

Two kinds of ground glass is not always reproduced on
Reflectors. the plate—but further, that the trouble of judging distance is obviated. That is to say, we can alter the focal distance between the plate and the lens to suit the subject by actual vision, not by mere guesswork. For any rapidly moving objects, especially those, perhaps, whose motion is towards or away from the camera in a straight line, the reflector possesses undoubted advantages. And not only because our guessing powers may be at fault, but there may not be the necessary time to accomplish the requisite mechanical movement. With a reflector principle we can not only watch the scene or object itself, but can ensure correct focussing at any moment. By correct focussing I do not intend to convey the idea of absolute or microscopical sharpness, but rather that of the exact focus desired. Upon the question of sharpness I shall have something to say later on, but for the present I mean the obtaining of our desires in that direction, the power of ensuring negatives that meet with our own approval. The small finders that are so universally fitted to the ordinary cameras merely serve to indicate position; they render no further help whatever.

Reflectors are of two kinds, but each possessing features of attraction. The first and simplest is that of the twin lens principle, in which two lenses of exactly the same focal length are used. One serves in the ordinary way for the plate, whilst the other sheds its rays, the right way up by means of a mirror, upon the screen. The other pattern is that in which only one lens is used, which in turn serves both ends. This is accomplished by a rapid movement of the mirror just before exposure. The advantage of the latter is first, that only one lens is



ONE WHO HAS THE SCRIPTURES "AT HER FINGER ENDS."



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required, with the consequent decrease in cost, and that the image on the screen or finder more closely indicates the impression upon the plate. Only one lens is in use, and whether it possesses any peculiarities, or the aperture be altered, the view upon the ground glass, upon which is staked everything, remains the same. Not so, however, with the twin lenses, because, as a rule, the finder lens is not arranged for diaphragms at all, so that, whilst it serves admirably as a finder only, it is no use upon the question of focus. True, this is a very simple matter to alter, but even then there would be the idiosyncrasies of each lens to take into account. It is an extremely difficult matter to obtain a pair of lenses that are in every respect identical. Those who have worked even with the lenses of one maker, of the best repute though that maker be, know how they vary in the different qualities or points. But even granting that for practical purposes it can be done, we have still the increased bulk and increased cost to meet.

On the other hand, where only one lens is used, the mechanism is either rather complicated and liable to derangement, or the question of speed of shutter and safety from light is one that must be considered.

Disadvantages. A proof of this is to be found in the fact that so few reflectors upon this principle are upon the market as yet, though I earnestly believe that the future will show great improvement in this class of hand camera. There is here a glorious opportunity for the inventive mind that will certainly not be permitted to pass unheeded. The difficulty so far is that either, as in the case of a shutter next the plate, the exposure must, of necessity, be rather rapid, and with very little control over variation, or when directly behind the lens any attempt to secure speed means risk of vibration.

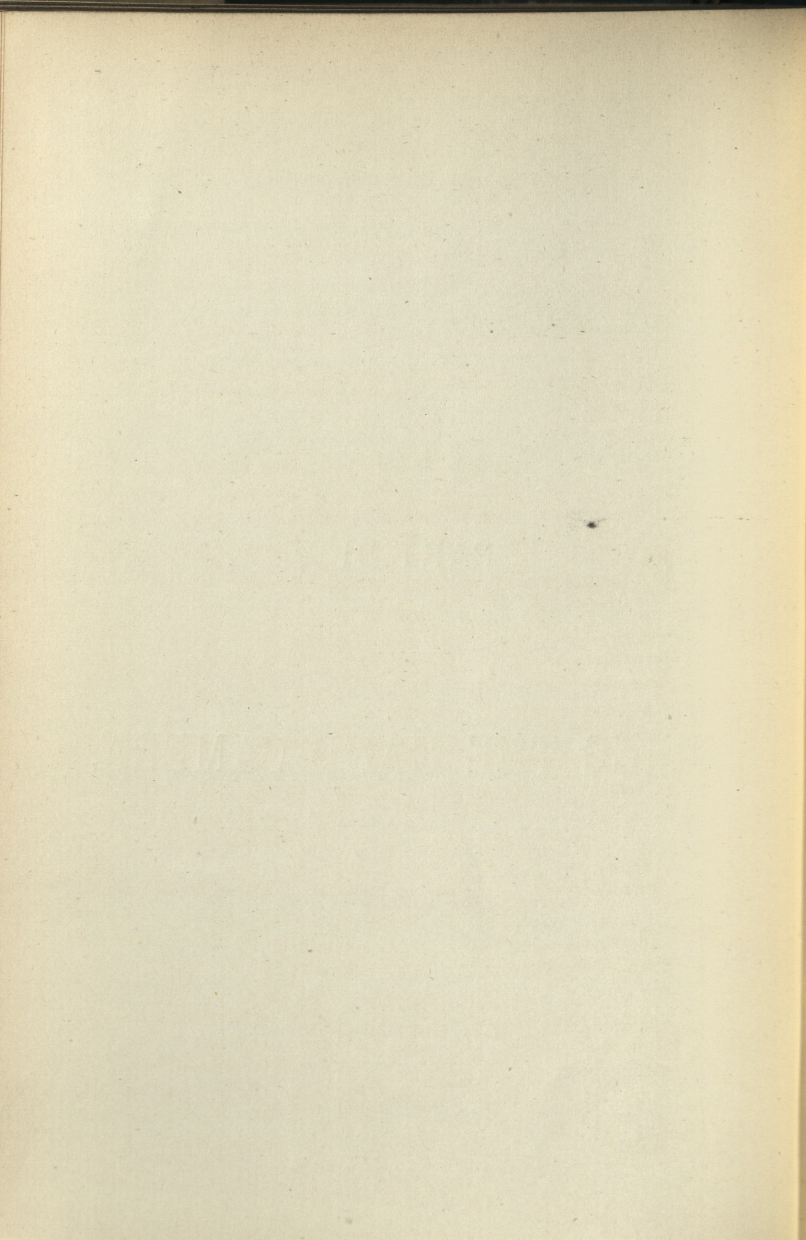
There are two disadvantages that apply to both systems equally. It is necessary that some hood or cover be provided to screen the focussing screen as much as possible from the light. This attracts the attention of the public to the camera

immediately it is set ready for use. Earlier on I referred to deep sunk finders, and the same thing applies here. However good the hood may be, the strong light all round the camera makes the image upon the ground glass difficult to see. In the small finder, it is not quite so important, because it is only used practically to centre the object, to get the view or scene in the correct position upon the plate. But with the reflector more is done than that—focussing, for instance. So that the undesirable light, which is bad enough to interfere with seeing the mere position of the object, is fifty times worse when it comes to focussing. With the small finder we judge the distance by experience, but with the reflector dependence is entirely placed upon the image seen. I say it from personal experience, and without hesitation, that unless the worker can get in the shade of a doorway, a tree, or the shadow cast by a friend's bodily presence, it is extremely difficult to see the image thrown up by the mirror with any degree of brilliance. And if this be the case, as it often is, with a lens working at full aperture, how much worse it will be with the light reduced by a stop. Therefore, one disadvantage of the single lens pattern is that in stopping down to even $f/11$ or $f/16$, the light is so reduced that the image upon the screen is difficult to see. The brighter the light, the more trouble to see the image, and this is just when the aperture is capable of being reduced. Altogether the question may be summed up briefly, Do we want to see a full-size image and the exact focus upon the finder? The answer is either, some of us do, or, there are occasions or certain directions of work in which it is to all a decided advantage.

At the same time, let due weight be given to the opinion of the non-finder workers, which is, that the camera is an instrument to carry out the artistic perception of the mind, not to create ideas, a recorder, not an originator. The only point is that the benefits conferred by a reflector principle camera can be utilised to their fullest, without interfering with personal choice or management of subject, if the user so will. It rests with him entirely.

PART II

USING THE HAND CAMERA.



PART II.—USING THE HAND CAMERA.

CHAPTER I.

USING THE CAMERA.

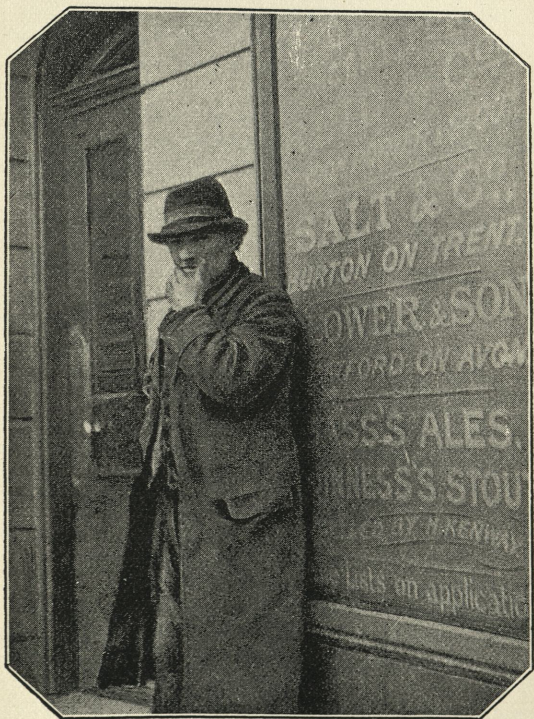
HAVING in Part I. studied the various features of the hand camera, and the varieties thereof, the different principles of construction, and the various forms adopted, I now turn to the various considerations involved by the actual use of one. The reader I now suppose to be in the possession of one or other of those described, and to be desirous of at once proceeding to work.

The very first thing to do is to carefully sit down and study the apparatus and its mechanism. This may not perhaps be so vital with the simple box form, though even with this it is advisable to study the shutter, the setting and discharging. But with automatic changers every care should be taken, not only to practise the method of changing the plate, but also to study the mechanism so as to understand exactly how it is brought about. This serves the double purpose of aiding correct manipulation and of putting the user in a position either to avoid making mistakes, or, having made one, will show him how to rectify it when away from home, or in the broad daylight. I desire to make a strong point of this previous study of the camera. It is not sufficient to be shown by the vendor or a friend just what to do. The user must know how it is done, what takes place inside when a string is pulled or a lever moved. He should

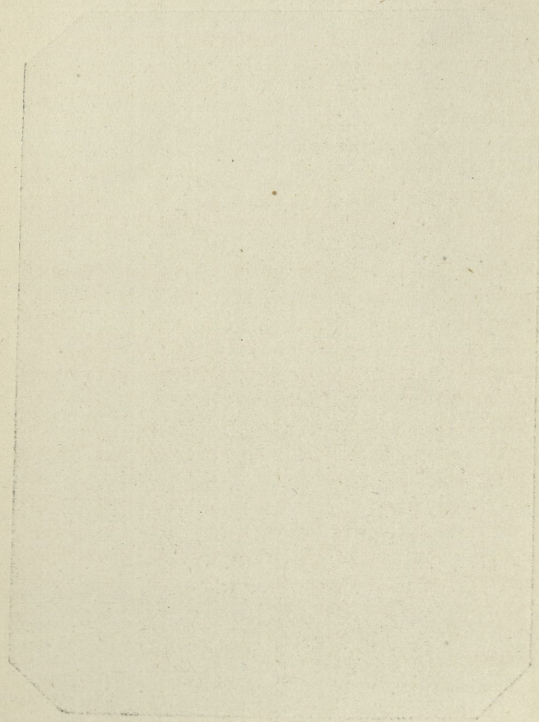
Study the Apparatus.

see if there is any chance of something going wrong—nay, even further, should endeavour to make the instrument, by fair usage, of course, go wrong. He will then learn what must *not* be done, and this is quite as important as knowing what to do. The weak points should be carefully studied and investigated. If it be an automatic changer, perhaps pulling or pushing the lever too hard or too gently will result in complete or partial failure. Perchance some movement must be made before another one will work correctly, and though the purchaser may have been told this at the time of purchase, it will not be so distinctly impressed upon his memory as by actual finding out *why* it is so. The camera should be opened out at home, and every movable part worked in turn, and the action seen; if any distinct order of procedure, *i.e.*, a necessitated system, it should be not only gone through, but the reason for it learnt. This can perhaps be best done by finding out what occurs if it be incorrectly handled, and this may also show what to do if such an accident does take place at any time. If a would-be hand-camera worker expects to succeed by merely following out printed or verbal routine instructions, he will very quickly be surprised by a mishap. Of course I refer now entirely to the man who enters upon the work earnestly and with a thorough intention of doing good work. To such as merely consider the hand-camera a toy or a little bit of fun, something to use only occasionally, perhaps as a change from or a relief to their whole plate or 10 × 8, my remarks do not apply at all. They will never accomplish much.

I consider a hand camera much more difficult to work than the ordinary stand camera, that is, to obtain good results technically. This fact will, I think, come home to many hundreds who thought it so nice and easy before purchase, but who now—well, when the camera is brought forth with an inch or two of dust upon the top, it is easy to guess where it has been for a few months. An amateur, the other day, told me that he



"SHALL I?"



used three dozen plates in the one he bought, and did not get a single fair result. There was nothing strange about that, truly, but when he added that he had never touched "the blessed thing" since, that gave a clue to the failures at once. Perseverance was lacking. Upon asking for the instrument I found it an expensive one, and not only that, but as far as could be judged from inspection, a good one. Borrowing half a dozen plates, I went out alone, and at night showed him five good (and one fair) negatives taken in "the blessed thing that had wasted three dozen plates." Was it the user or the camera? Neither, exactly. He had not given it a fair trial, that was all. But how many there are of these easily daunted workers.

Possibly one explanation of failures is simply that too much haste is shown to get to work. The plate is exposed in a back-yard, or in a narrow street, with a shutter working too rapidly for the light at command, and the development is simply muddled. It would be very much better if the *first* use of a hand camera was to be made at the seaside, say, in a good actinic light. Because if the worker gets a few good shots at the very outset, he will go on through piles of failures afterwards. Another explanation is often given, "the thing stuck, and wouldn't move." And why? Because the camera was never even glanced at before setting forth, to put into practice mechanism absolutely unknown to the person setting it in motion. Therefore I urge the importance of a thorough examination of, and practice with, the camera before any attempt be made to actually use it to expose a plate.

If it were not for the fact that two methods of holding the camera are persistently advertised, this question could be treated differently. There are several ways advocated altogether, but I shall only deal with the two recommended by the makers of cameras, and Professor Burton's article in *Photography* of September 3rd, 1891, from which

**Position of
Camera.**

the following is an extract:—

"There is one kind of work in which we are inclined to think a lower point of view than that of the eye when standing is seldom admissible. We refer to street scenes. We do not sit down in the street to look either up or down it—unless we have trod on a piece of orange peel, and then we do not incline to be contemplative—and we may leave the view from the area steps out of the question. Nor does a man carry his head under his arm, or have his eyes in his stomach. On the other hand, a high point of view is not by any means uncommon. We constantly have it from the top of a vehicle, or out of a window. The London street scenes, by Mr. W. Cobb, were all taken from the top of an omnibus, or of a still higher vehicle, and we do not know that they have been excelled.

"Of course, it is the hand camera that is the chief sinner in this respect. It is not often that a tripod is erected in a street, but it will be found when it is that it is instinctively stretched to its highest. On the other hand, the makers of hand cameras constantly illustrate them as pressed against the breast, or held under the arm during exposure, and such positions are, we believe, generally adopted. One maker of an excellent form of hand camera protests vigorously against these positions, and advises that the camera be held under the chin. This is certainly an improvement, but we think even this point of view is too low. The camera should be held rather above than below the level of the head."

I quote the extract in full in order to give due prominence to the opinion of an authority, especially as a letter appeared the next week signed "R.," which stated that—

"It is interesting to observe how doctors (and professors) differ even in connection with photography. Professor Burton says of hand cameras: 'The camera should be held rather above than below the level of the head.' Professor Welford (in the same issue of 'ours' in which the quotation just given appears) says: 'Let me say at once that I consider the proper place for a hand camera is down at the side, with the arm round it.' Both men are good enough for guides, so perhaps it will be well to alternate the positions. This is a very interesting question, and doubtless many readers will be ready to say which is the most successful position in which they can do their work."

To deal first with friend Burton's idea, he must mean by street scenes complete views of streets, that is, those giving the whole length of a street. He surely does not intend that

the camera should be so held when taking a figure, such as a beggar, a group, incident, or crowd. Because, if so, I must respectfully but distinctly disagree with him—in fact, so absolutely that I will not at the moment consider his meaning to be these latter scenes at all.

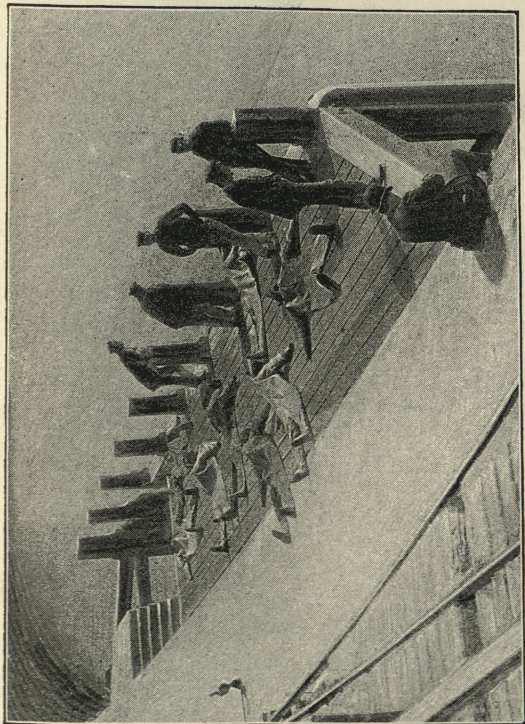
I admit that many of my best shots were taken from the tops of omnibuses, and yet there is a fault with all of them, due to the height from the ground of the camera. The figures close to the camera are top-heavy, there is a

Top-heavy. dreadful air of taking the heads of people from above them, just as a balloon photograph would represent them. I take it that the view ought, as far as possible, to represent the street as seen by the eye. For two reasons this is not so when the camera is used at such a height from the ground. 1st: Hand cameras necessitate short focus lenses, or, at least, comparatively short focus ones. Distortion in the opposite direction to that when taking high buildings from the ground is painfully apparent. If the lens grasped the scene just as the eye saw it, even from the top of the omnibus, I would agree at once with the correctness of the theory. But it does not. 2nd: I very much question whether the ideas of a street in our mind are such as can be represented by one depicting it when taken from a considerable height. And in this connection I ask anyone who knows any particular street, by constant passing along it, whether the impression in his mind if investigated would not show that it is one seen from the ground when walking. There is a curious "looking down" effect in street views taken from a height that to me, at all events, invariably appears a photographic necessity, not a pleasing or true result. But it may be said that the short focus of the lens is quite as much a drawback if the view be taken from the ground. That is true, but I certainly consider the result gives a more correct rendering of the view as our recollection preserves it. There are, of course, exceptions to this. If we are in the habit of seeing a certain street, or portion of one, from a certain

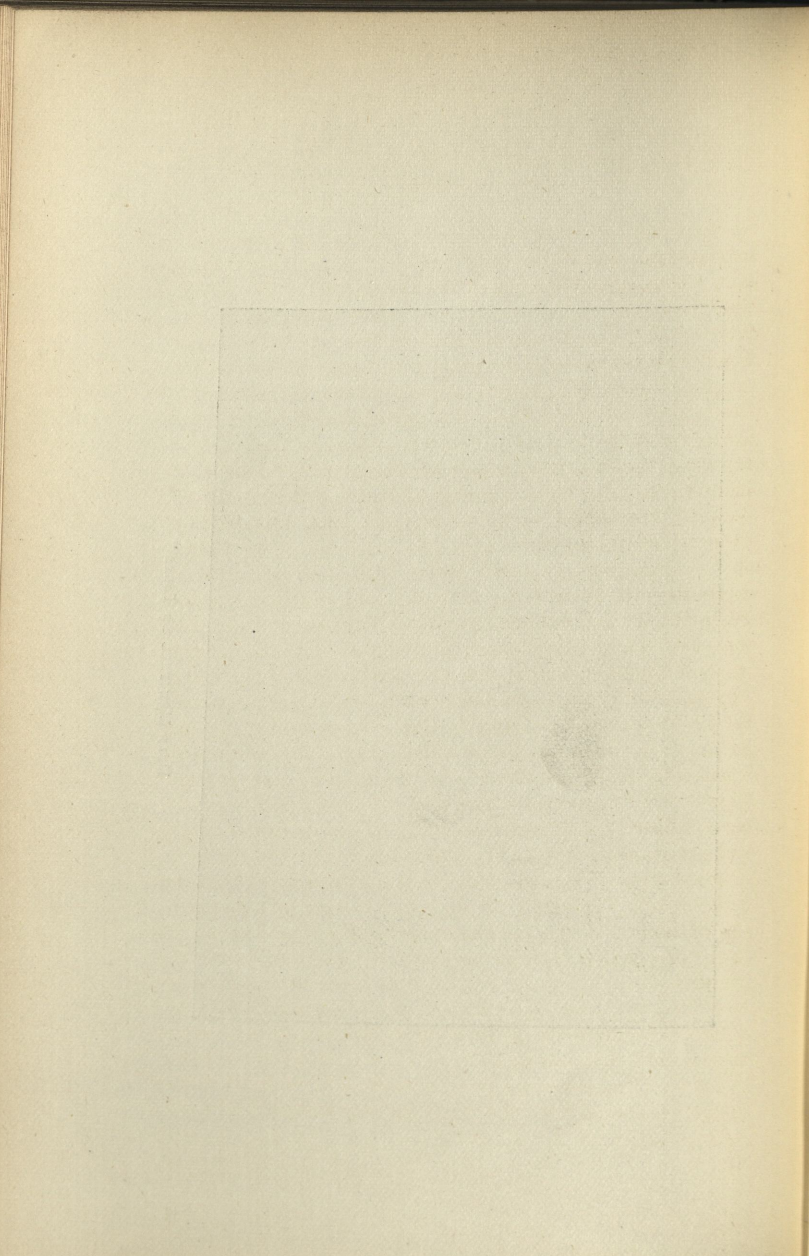
window, one view should certainly be taken from that point. But even then it would always be regarded as taken from the window, not a representation of the street as seen generally by most people. Or if some portion be elevated, so that everybody must see it from the same point, it would make a difference. I doubt, however, whether a view taken from an omnibus, which is constantly changing its position, and which only appeals to those who may perchance have noticed the street from exactly the same position, or at the same moment, from the top of a vehicle of some sort, is, in any way, satisfactory to the general public.

To turn now to the practical side of the question, holding the camera above the head is absolutely impossible in a street, owing to the attention it would attract. And lastly, I do not believe that in except one in ten shots the camera could be held steady enough in such a position by one in a hundred hand-camera workers. I should, therefore, deem such a position utterly unsuitable for the majority of workers, at all events, to say nothing about the results, even if secured.

The other methods of holding the camera are briefly these: (1) Under the chin; (2) against the chest; and (3) at the side under the arm. Of these three, under the chin obtains very much the same results as above the head, but with the advantage of something to keep the camera steady. Nevertheless, I must confess my personal predilections for the other two methods, either against the chest or under the arm; though at the same time a point that must not be overlooked is that different patterns almost necessitate different methods of use. With the majority, for instance, those with small finders, under the arm is undoubtedly the best position. The discharge for the shutter as well as the finder is completely in the front of the camera, and therefore the rest of it can be kept well towards the rear. This, together with the shield afforded by the arm going right over it, keeps it well out of sight. And finally, the rigidity gained by the pressure against the whole side of



DEAD MEN TELL NO TALES "



the body can hardly be questioned. In this position, too, some patterns can be used with one hand alone with perfect ease. This, however, requires the discharger to be at the side, away from the body, and to be a pretty easy movement. Whilst the hand and arm generally support the camera, one finger can be utilised without the slightest movement to effect the discharge of the shutter. It is a decided advantage to have one hand entirely free. For any kind of work, it helps to avoid attention, as the free hand can be utilised in a variety of ways to keep the public from suspicion. But it becomes of enormous use when using the camera under difficult circumstances. I remember, very distinctly, one case when using a pattern that needed both hands how it troubled me. It was upon a small yacht, in a stiff breeze with a fair sea on. Of course we were flying along with the keel nearly out of the water, and the best position for me was, undoubtedly, ahead of the mast. There I found a comfortable seat on the deck, with my legs hanging over the side and the camera on my knees. That is, it would have been comfortable, but for mental perturbation. I wanted one hand to hold a rope or rail by, but having only two at my disposal, both claimed by the camera whenever I wanted to use it, it was an extremely nervous time. This caused the loss of several good pictures, because even a hand camera is not sufficient to make one rashly risk a wetting and a probable loss of the camera, to say nothing of the prize pictures already secured—they are all prize pictures until we develop—and therefore I not only had to wait for opportunities of shots, but also for chances of using the camera. As these two had to coincide very exactly, naturally with the perversity of Nature, they would not. Now, if I could only have had one hand at liberty, it would have made all the difference in the world. The same remarks apply to a variety of occasions, standing in a strong wind upon a narrow ledge; at the top of a scaffolding, or a flag pole; in fact, in numerous difficult positions in which the enthusiastic and earnest worker must get at times.

With the reflector principle cameras, under the arm is not quite so suitable, for in these the screen is usually right at the back. Moreover, in these the image is focussed upon the finder, and needs to be nearer the eyes. Against the chest is therefore, in most cases, the better place. And to those patterns used without a finder at all the same thing applies, as the horizontal and vertical lines are more easily gauged in this position.

It is quite true that no one particular method of holding the camera can be laid down as the best, even if one stated instrument be considered. The differences of subject and the position of the user must, to a large extent, at all times govern the matter. But I do lay it down emphatically that the position the most comfortable, the least observed, and the most steady, is under the arm. It would seem at first sight somewhat absurd to say that the difficulty of hand camera work is avoiding movement in use. Everybody appears to know that, and to an extent consider it. But the fault lies in the fact that insufficient attention is given to the matter. We are apt to think that after a week or two's use, that that has been overcome, and needs no further consideration. But there lies the error. The steady, immovable grasp of the camera during exposure is not to be mastered so quickly. Much depends upon the man, of course, but more depends upon practice. And attention should never be removed from the contingency for at least three or four years; it should always be guarded against.

Therefore, in considering the position in which to hold the camera, the more support that can be got by the body, and the more comfortable the method, the better.

CHAPTER II.

STREET SCENES.

IN order to keep matters clear and explicit, let me say that I now consider the worker to have mastered the mechanism of his apparatus, and to have studied the best position in which to hold it: both of these by previous trial and practice. He is now desirous of really getting to work, and about the first opportunity that will present itself is a run through the streets of the town or village.

What a wealth of subject lies here, often touched, but, oh! to what a slight degree. The varying incidents of every-day life, the characters we know by sight, the beggars and cripples,

**Wealth of
Subject.**

the pavement artist, the wandering accordion player and singer of Moody and Sankey's hymns, the no-legged man who suffered so severely in a colliery explosion with his picture and plan of the disaster, the discourses of sweet music by handle turning and the happy-faced children dancing round, the newsvendor and penny trinket dealer, the street fight, the drunken man, and the thousands of things we all see and know so well in our daily life. The painter oft depicts them, but he needs much study of surrounding, much help of models and months of labour. The hand-camera worker secures a pictorial note of the scene in a moment. The ordinary camera man can by dint of careful posing, a certain amount of cheek, and several little dips into his pocket, get sometimes a really good street incident. But

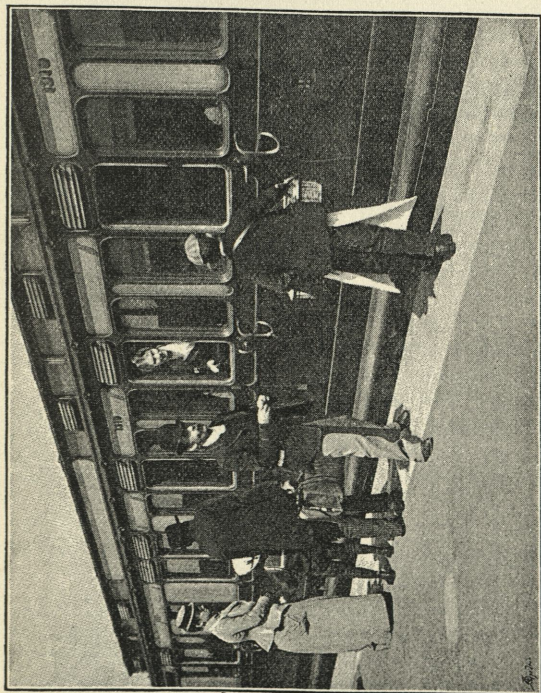
the hand-camera worker troubles no one, he merely waits his opportunity, and when it comes seizes it, then passes on without anyone being any the wiser. There is enough work in the streets to keep us all going—but, alas! there are but few making a distinct feature of it. And why? Well, the results are not picturesque. At an exhibition they look silly beside fine yacht and cloud studies and pretty landscapes. Even as lantern slides they are dwarfed into insignificance upon the sheet by a fine sunset, or a pretty marine shot. And yet, how much the future will owe to the hand-camera man if his work will only show what our streets and our people, our everyday life in fact, were like in the Victorian age.

I might as well admit, because if I do not somebody is sure to tackle me on the question, that street life is a mania of mine. It always appears to me that the tendency of hand-camera workers is to produce something that will compete with the work of those who use the ordinary camera. They want to show what they can do, even with a despised little box. But what a mistake it is after all. Even supposing now and then a $\frac{1}{4}$ -plate landscape can be shown, taken in a hand camera, that is superior to the others around it taken in the ordinary way. What is gained by this? Absolutely nothing. Messieurs Hand-camera Men keep your thoughts to your instrument, and what it can do easier or better than the 10×8 that lies so snugly at home, not to what it can be made to do at a pinch. These considerations naturally lead to the question of photographic surveys.

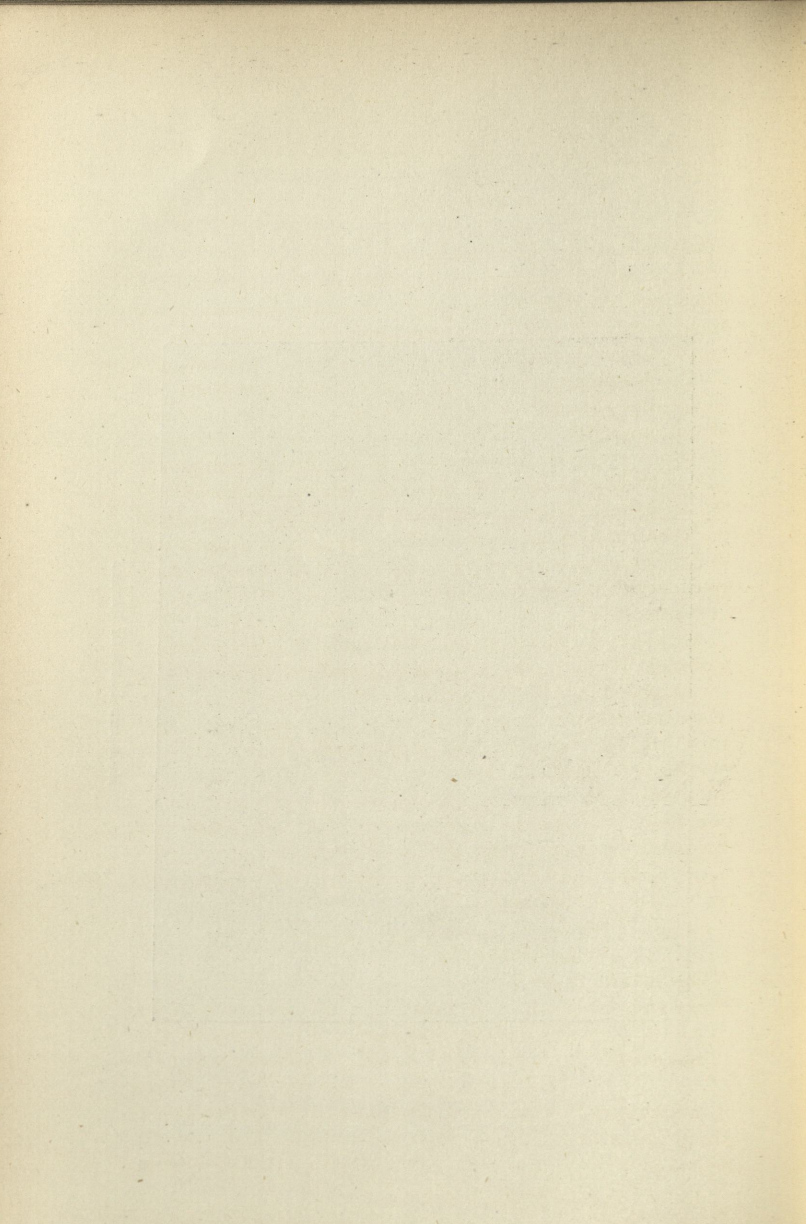
If there is any one thing more characteristic than another of the photographic survey schemes, it is that of excessive fuss, gigantic organisation, and very little work. Much ado about nothing, in fact. But forgetting this

Photographic Surveys.

for the time being, why is not the hand camera more honoured? Some surveys must have all the prints one size, which effectually excludes the hand-camera print altogether. The effect is sub-



"MILK AND BANBURY CAKES."



limely ridiculous. There are representations of trees, rivers, streams, old mills, churches, &c., that may probably be the same two centuries hence. Even if some of them vanish small will be the loss, unless they are made noteworthy by an event or the personality of some resident. Whereas the habits, customs, manners, dress, and appearance of human beings, the hand-barrows and carts, the various callings and avocations of the street, our postmen and policemen, would possess very much more interest to the future generation. Views of busy streets, with the bustle and characteristics of the present age, are much more likely to be of real use than thatched cottages, ordinary buildings, pretty landscapes, and stone monuments. Life and its attendant phases are more ephemeral, and therefore more worthy of pictorial record for future reference.

It is not with the intention of decrying the surveys that I write, but to call attention to the fact that, in either shutting out the hand camera altogether or in sneering at its work, those interested in survey work are wilfully neglecting their duty. By all means continue your artistic landscapes, your sweet bits of woodland scenery, the brook, the dell, the glen, the glade; but, remember, life will always command attention as well. Therefore, ye noble army of survey originators, discoverers, and organisers, give the hand camera not only its share of the work, but of the credit as well. Remember, that life is like the brook—

For men may come, and men may go,
But I roll on for ever.

The maxim to be observed in all street work is secrecy. Every endeavour should be made to prevent those around the worker becoming aware of the presence of a

Secrecy. photographic camera. And the necessity for this does not arise from the inconvenience of the moment, the remarks and curiosity of the street *gamin*, which occasionally to a shy man are painful. It is because the set attitudes of one or two, who have gleaned the impression

that it is a "portrait machine" may utterly spoil a picture, to say nothing of the way people will get right in front to see the thing work. It is in this one respect that the hand camera possesses such a marked advantage over the stand camera, and it behoves us to utilise the gain to its fullest extent. When we want to illustrate a scene of the streets it is absolutely absurd to have even one figure posed photographically or otherwise. Why, the man with a tripod can do that. There is another consideration, too, apart from the attitude of one or two figures which may be merely accessory to the scene, and in no wise the central object. The study that the worker desires to get may be spoilt, either by the actual sight of the camera, or by intuitive conception of what some other people are staring at. Take, for example, a stall in a market, the vendor and prospective customers bargaining over the goods may form a characteristic and attractive group. But if even one of them thinks you are going to photograph, he or she will at once cease their conversation, alter their attitude, or, at the very least, attention will be diverted from the business in hand to the mysterious camera. The day has gone by when a well-concealed hand camera can be used with impunity. Too much is now known of "detectives" altogether, and it is only by quick use that shots can be secured without the knowledge of those figuring in the scene.

Quick use? Yes, that's the whole secret. It should be practised at home beforehand, rapid levelling of the camera, quick perception of what is on the finder, and instant action.

Perhaps my own methods will illustrate the matter best, but I trust that readers will not think it egotistical to set them down. Presuming, then, that there is, say, for example, a small crowd round a fallen horse. I can scent the chance of a picture in it a long way off, and as I walk set the shutter, alter the focal distance, draw the slide, or do anything that is required with the particular make of camera. Before reaching the place, my position is selected, and unless something happens in the mean-

while, such as an alteration in the position of the grouping, or somebody or some object getting in the way, I stop when I get there, raise the camera quickly, and then fire. Immediately it is taken, down drops the camera, and any movement necessary to get ready for the next exposure, or to secure the one already obtained, is either done as I pass on, or, if another shot be required, is done by turning round, or doing it as quietly and unostentatiously as possible. As my object is to keep other people from noticing the camera, I do not notice it myself, but endeavour to give the idea that something else is engrossing my attention. Should anything intervene to prevent the shot coming off, I never keep the camera in position, but drop it down at arm's length immediately, and watch for an opportunity later on.

I have been much amused occasionally at hand camera workers, especially in the streets. You can tell a mile off that there is a camera about, for the possessor shows it in every movement. Long before there is a chance of a shot he opens out the finders, perhaps stops dead to put things right. Next he places the camera in position, and bides his time. Before that picture is secured three-fourths of those around know all about it, and his print will probably prove it. The camera should never be glanced at, nor, in fact, thought of, until the time arrives; and even then the quicker it can be placed in position and removed the better. Never mind if this has to be done several times. I have many negatives that were only taken after nearly twenty different raisings and lowerings. But I got what I wanted, without attracting the attention of those interested.

A friend once said to me in connection with this subject, "What does it matter letting the people know *after* you have got your shot?" My answer was, "What good will it do? these people will know you next time, some of them may even turn up in your next shot ten minutes later." No, either in making an exposure or in getting ready for the next, attract as little attention as possible. It cannot do good, it may do harm.

To some, probably, these remarks are unnecessary; they have quite seen the value of quick work long ago. Well, if they act upon the idea, it is all right; if not, they should give attention to it at once. But there may be

Aptitude.

others who think this sort of thing requires a natural aptitude, possessed only here and there. I am not prepared to argue this question, because it goes beyond the realm of hand-camera work. But it is easy to assert, and I do it confidently enough, that every worker can improve himself by practice. The points are these—first, rapid mechanical movement, and second, quick perception of what is on the finder and the discharge of the shutter. It seems a curious thing to say, yet it were easy of proof, that considerable time takes place between making up one's mind to do a certain thing and actually doing it. Now I am not trying to be funny, though seeing perfectly a few nice little jokes that might come in just here. But it is absolutely true, that when we make up our minds to do anything we do not do it—not at the same period of time. There is a distinct interval of time between thought and deed. “How absurd,” my reader remarks—I am sure they will—“even if there is such a thing, what fraction of a second is it?” Just so, but remember your shutter works probably at the $\frac{1}{50}$ th, or even faster, and yet it fails you occasionally by its slowness. It is quite true that the faculty of quick perception and instant action varies enormously in different human beings. The fact must be admitted, but we need not go further than the admission. Can it be altered? is the question, and I assert that it can, and base it upon my own experience and practice. A hand-camera worker can not only quicken his thoughts and see things more quickly, but he can carry out his wishes in a less space of time. But this can only be gained by practice. I will detail a test that will in most cases prove my argument. Use a reflector principle camera directed to a rapidly-approaching object at a distance varying from, say, 20 yards to three yards. Try to focus it, and fire the shutter

to obtain a sharp image. The difficulty of so doing will be painfully apparent at the first few attempts, but mark in time how much easier it becomes.

For street work, then, quick perception, the power of instant action and secrecy of movement are extremely desirable. All these things can be gained by practice alone.

There are many little tricks that I resort to to keep away attention from the camera. Buttoning a top coat, loading up and lighting a pipe or cigar, earnest attention at something in a shop window, even if it be only a milliner's, asking a question of the nearest victim, looking at a letter or pocket book,

Tricks. examining my purse to see if I have got enough for something (I don't mind confessing that generally I haven't), or feeling for something in pockets as destitute of anything as charitable institutions, &c., &c. Of course these are only necessary if it is imagined that the camera is detected. A friend, too, is very useful, because he can be turned to with the utmost unconcern, and questioned about, say, the weather. By-the-bye, there is another valuable use of a friend, or rather his shadow is the valuable portion of him. It shades the finders, and is very comfortable at times. I need not say that the bigger and fatter the friend is the better for this purpose. There is only one thing about friends, which is, that the worker is usually better without them. They stare at or point to the subject, perchance ask, "Are you going to take that?" Then if they do not get in the way, they look at the camera, or in some way attract attention. The ordinary stand-camera man is the worst.

Turning again to the question of speed in manipulation, there are many who would decry the hand camera on that account alone. I have myself received

Speed in Manipulation. many good tall talkings to about it when out with an experienced photographer for a trip. I use the term experienced photographer as a distinctive one only to make a difference

between him and the hand-camera worker, for assuredly he is not an experienced hand-camera worker. He looks upon me as a mere plate-waster, a sort of annual benefit to the plate manufacturer, a dividend raiser, a maniac. Passing along a street, whilst he is wondering whether that group on the left is a good subject, and making up his mind whether he would take it or not, I have taken two or three of it, and changed the plates ready for another shot on the right. He gasps merely, "That I should come out with such a man."

The point I wish to make is that, by practice both of thought and mechanical movement, it is possible to work extremely quick, and yet obtain the same quality of results as a slower worker, with the advantage, of course, that scenes lost by him for want of time are secured by his more rapid brother worker. And in street work this is a desirable feature; especially is it so to a busy man, who is not able to roam the streets every day of his life, and who must do the best he can when the opportunity occurs.

A very common mistake made by many workers is that of regarding the desired object too fixedly and too long. It should be avoided as far as possible, because it arouses attention and interest. The aim of the worker's presence should not be discernible, and one of the best methods to attain this is to avoid looking at the subject any more

Avoid
Attention. than is absolutely necessary. I don't mean on the finder or through the camera, but with the eyes. And if the worker is walking down a street for a shot, he should endeavour to appear to arrive naturally at the spot desired, rather than by a sudden turn or twist. Because in all these things it must not be overlooked that, however careful the worker may be, however concealed his apparatus, the bare fact of stopping for a moment with a box is quite bad enough.

To say anything about choice of subject is quite beyond the space of these chapters. But the streets of any town afford shots so numerous, so interesting to others, such examples of

our present life, that one might well despair, as I have often done, of ever doing them justice. Pathos and humour, the brightness and misery of life, are so irresistibly mingled in the streets, that the portrayal of them even in a humble way is a contribution to our knowledge, and an instructive lesson to all. Let us profit thereby.

CHAPTER III.

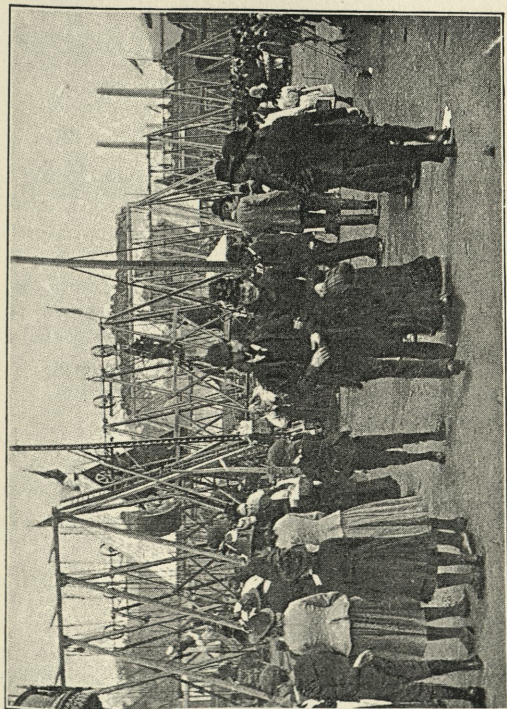
THE FAIR, THE FETE, SPORTS, &C.

MUCH that I have written about street scenes applies equally to work at the country fair. The worker should remember that most of the people are there for pleasure, and are extremely jovial and larkish. On the other hand, the business element represented by stall-keepers, shooting-gallery girls, "koker nuts," and the various "fat woman" and other shows, is just as volatile in the same direction, that of unlimited chaff. Therefore, secrecy is of the very

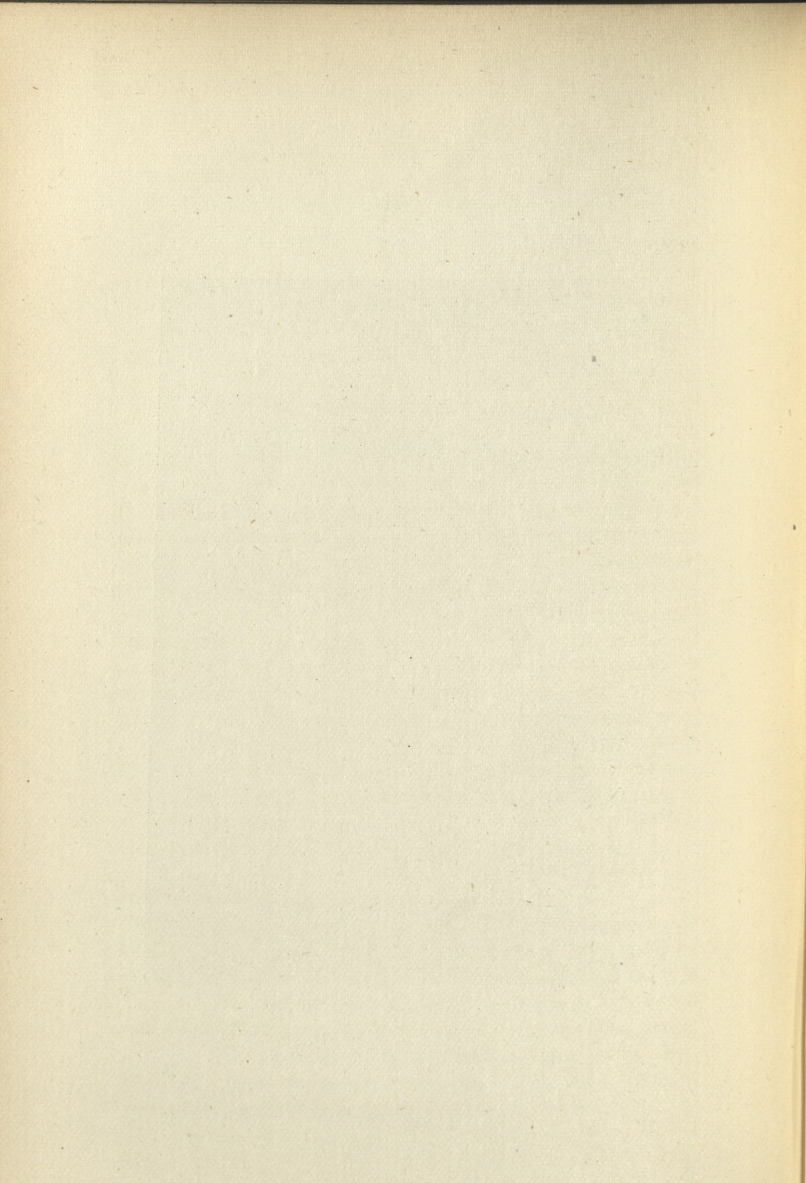
Secrecy. greatest assistance, not only to prevent the annoying, though good-humoured, chaff of the crowd, but for the same reason as in street work, to secure more natural pictures. The fête differs somewhat from the fair, as it is usually in a much larger space, and although, of course, it is none the less a holiday-making yet there are attractions, such as a balloon ascent, stage performances, tight-rope walking, dancing, sports, &c., which give quite a different tone to the whole thing. The concealment of the camera is, consequently, not so necessary.

The fair, whether it be large or small, affords magnificent chances. Most of my work has been done at the very large annual one at Coventry, but the same opportunities present themselves all over the country. A little

The Fair. tact and a few coppers, together with quickness both of conception and movement, will secure many interesting *souvenirs*. Take the travelling show with its huge pictorial embellishments, "The Bounding



THE FAIR, COUNTRY VISITORS.



Brothers of the Desert ;" there's the show itself, and at "rally" time all the characters are in the front. One shot I have is of such a show ; two girls dancing and showman urging crowd to "come on, now's yer time, just going to begin," clown ringing a bell, two children in tights looking on, and another man beating the drum. Just opposite this show were some steps up to a swing. Telling the attendant I was just going up for a minute and investing one copper, I got above the crowd and secured two excellent shots. But, as luck would have it, I got interested in the showman's yarn, forgot whether the last exposed plate had been changed, and set to work to puzzle it out. This doubtless made me regard the camera too much, for the clown tumbled to my object, fetched every member of the company, and made them toe a line, to have their "fortigraphs took." The most unmerciful chaff that ensued from two clowns and the showman, together with the attention of a large crowd, drawn directly to me, a solitary object perched upon the steps, caused a hasty retreat on my part with a rapidly rising colour. However, all the plates turned out well, so I cared little—afterwards.

Cheek is remarkably useful, or perhaps a prettier word is nerve. The more the hand-camera man possesses of this, within certain limits, the better. It serves two purposes—

Cheek. obtaining results that another worker would fear to attempt, and keeping cool and collected in the midst of a fusilade of jokes and remarks. I cannot claim much cheek myself, though admitting that I am getting on. What some friends consider my nerve is really speed in action. I venture a shot, not because of cheek, but for the reason that I can manage it quickly enough to avoid attention. In this way speed helps in still another direction.

A good plan to follow is always to get behind or at the side of a tent, cart, or show, and whilst there prepare the camera ready to fire the shutter. Keep an eye on the subject by occasional glances, and at the correct moment step forward.

and fire, dropping back immediately. Good shots occasionally are to be obtained from the outside stage of a show. It is necessary to wait until they *really* are going to begin, then passing up the steps with the rest and paying the penny, and quickly stepping to one side to clear those ascending, a capital opportunity may present itself. Of course, the worker will have seen the picture before ascending, so as to avoid delay and disappointment. There is an enormous amount of work to be done at a good-sized fair, though patience is a decided requisite. The mass of people fluctuates very greatly, and the worker must wait his opportunities. It is of but little use getting there early before the many sightseers begin to arrive, as the stalls, the shows, the swings, etc., will be found to be too dead, all covered up perhaps, or without attendants. No, undoubtedly the best time is about dinner time, or early in the afternoon, when everything is in full swing.

A short-focus lens is preferable for this, as space is very limited as a rule. Even where a space is sufficiently great to admit of a clear view, the constant passage of people causes tedious waiting, or prevents shots altogether.

The fête offers quite a different range of subjects. It is usually held at some more or less pretty or celebrated spot; gay dresses and holiday attire reign supreme. Stalls and

shows there are, perchance, but only a few, and they are but minor attractions. I cannot, of course, speak for all fêtes, as they no doubt differ considerably. I have been at a great many in Essex—round Chelmsford, Colchester, Braintree, etc., including the Dunmow Flitch event, and they are much of the same nature. The largest one, however, is undoubtedly the Temperance Fête held at Newcastle-on-Tyne, upon a huge space called the Town Moor. This affords innumerable opportunities; there are military sports, such as tent pegging, etc., about twenty different other sports in connection with various institutions and bodies, sports and games for girls and children, etc. These are all going on at the same time, and



BALLOON ASCENT WITH PARACHUTE.

in addition there are a large number of shows, booths, and stalls. This fête is really worth the attention of hand-camera men. Midland readers have the opportunity given them annually by the extensive three days' fête at Dudley Castle, near Birmingham, though the crowd is rather great. Last year (accompanied by Mr. Sturmev) I got some good pictures, but at considerable personal discomfort. A crowd of 25,000 people in the courtyard in a compact mass, watching the performances on the stage, is no joke; and the pressure, to say the least of it, becomes monotonous. In several cases here it was necessary to hold the camera at arm's length above the head. To give a slight idea of the crush at one time, for half-an-hour I was absolutely unable to get the camera raised at all, and when I did it had to remain on my shoulder and head as long afterwards, owing to perfect inability to squeeze it by any means down to my side again. The inflation of the balloon affords a good subject, but it is best done when about half full. The sand bags, the men at work, and the crowd round the ring, make up a capital picture. Next, of course, is the ascent, and to do this it is necessary to note the direction of the wind, the surrounding buildings, &c. Having done this, a suitable spot is found, and the balloon waited for. Owing to the rush for good positions, a spot must be found that is safe from invasion. At Dudley Castle I managed this by climbing up the ruins of the Keep to a spot where no one could come unless I removed from it. At Cardiff I waited outside the enclosure, in the proper direction of the wind. When the balloon was released it just cleared the palisading, and the parachutist's feet touched my hat. All that was requisite was to wait till the balloon was small enough upon the finder to get it all in.

Athletic sports, especially those of a country district, afford very good work. Mere sprint or cycle
Athletic Sports. races are not of much use, but the water jump or a hurdle race, three-legged and sack races, give at times extremely humorous shots. The obstacle

race is, perhaps, the best of all in this direction, though the bell race, where each competitor is blindfolded and endeavours to strike the bellman with a little bag of colour, is also occasionally exciting for the hand-camera man as well.

May-day fêtes with children in fancy costumes are a little disappointing. As a rule the dresses are all white, and when dancing round the pole the area is too large to be covered by a $\frac{1}{4}$ -plate or 5×4 .

Tennis is not very interesting, and hand-camera shutters do not, as a rule, work rapidly enough. For in tennis the movements are very short and quick. In

Tennis, Cricket, football and cricket, however, the movements

Football. are slower and more prolonged. The latter,

however, is not a good subject to tackle, as the space from spectators to the pitch is too great to allow of much being done. What might be termed "park cricket," however, is different, for in parks various teams are all playing at the same time in a somewhat confined space, and opportunities are afforded. Football, whether under Association or Rugby rules, is better than cricket, because scrimmages, lining out, and other phases of the game occur close to the boundary line. The only thing is that everything depends upon the chance direction of the play—in fact, where the ball goes. But many good shots should be secured unless the worker is very unfortunate as regards position. My work in this direction has always been at big matches, where the spectators line the rails all around. But at small club events, the worker could change about. One thing is to choose the correct position for the light. If a big match, unless the field is known, it is advisable to go early and find the best spot, paying the extra for reserved enclosure or otherwise as may be required. If the field is known this is, of course, not necessary. The ball itself should not be troubled about, unless extremely near. I have one (Association) with the ball in the air, but no one believes it. They say it is merely a dodged negative.

Skating is somewhat precarious, owing to the want of light at the time of year. But with the reflection from snow and ice, if there is anything like a decent light, it is fairly easy.

In dealing with the foregoing sports, &c., I have considered the ordinary worker only. Of course, with special facilities, or with matches specially arranged, almost anything could be done. At cricket, for instance, the position with the umpire at (short) square leg would be a good one. Admission into the ring at athletic sports should be easily obtainable, otherwise but few chances would occur.

In conclusion, a quick and simple changer is very desirable for all the work dealt with in this chapter, and a shutter working at about $\frac{1}{50}$ th will be fast enough for the most likely shots.

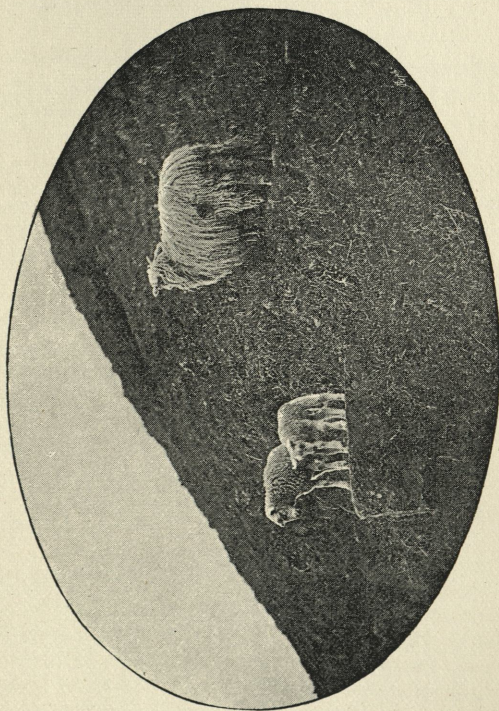
CHAPTER IV.

ANIMALS.

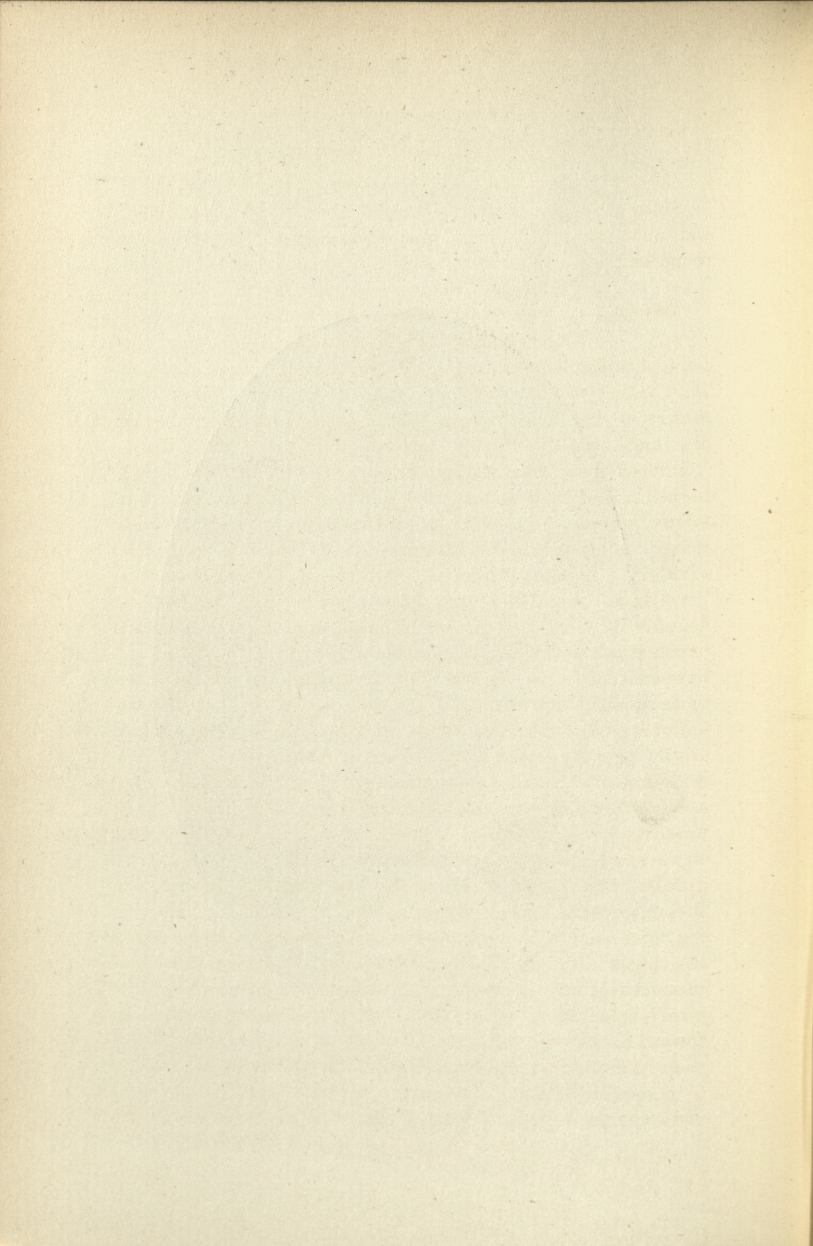
WHEN I say that the hand camera is not such a boon in photographing animals, at all events domestic ones, as some might imagine, my readers will misunderstand me. Of course, following animals about in a big field, or upon

**Too all-fired
lazy.**

an extensive common, is no joke when a tripod has to be lugged about in addition to a camera. But that is not what I mean. It is in the direction of attracting attention that the hand camera fails. Pictures of animals lying down, or with their backs turned, are extremely tiresome to look at, and yet how many we see. The difficulty is to make the animals as much interested in the photograph as the man using the camera. This can be readily tested by a trip to the nearest field containing cows, horses, or sheep. If the worker approaches too near they will probably walk on quietly; if he dodges to the left they turn to the right, if he gets right round to the other side they face completely the other way. The fact of the matter is they treat the hand camera with utter contempt, they are not interested enough to look at it, not concerned enough about their safety to face the foe, and too all-fired lazy about the whole thing anyway. On the other hand, if they really do get excited about the matter, good-bye to a good shot. What is needed is a mutually sympathetic interest in the affair, on the part of the worker, to attract the animal's attention to secure a pleasing picture, and on the part of the animal to know what that two-legged animal is doing with the black box.



CURIOSITY.



Sheep make pretty studies, but are difficult. They are shy, and upon anything like a near approach turn completely round and flee. If a view of hind quarters and tails be satisfactory, that is an easy matter, but that is not all we want. Sheep are strangely contradictory, while they simply fly at the

Sheep.

sight of a dog, they merely trot off when the man appears. They have another weakness, too, which serves the hand-camera worker in good stead, that of turning round to face the dog and actually moving towards him for a time, then, frightened again, turn tail and resume the flight. Here comes in the contradictory nature, they don't do that with a man, but merely resume their grazing, and move on as he approaches closer. A dog under considerable control is therefore a valuable auxiliary. Because when the sheep turn to face him, then is the chance. Another thing about these animals is the suddenness of fear. It appears almost as if they are either unobservant or it takes considerable time to comprehend. I have constantly had to wait for sheep finding me out. By quiet, stealthy movement it is possible to get quite close; the animals pay no attention whatever for a time, but suddenly it dawns upon them that they had better make a move. In this respect sheep are more amenable to our work than most other animals, because they generally have a good look first, and the peculiarity may be turned to good account in this way. Get as near as possible without attention, focus or determine the distance, and get all ready to fire the shutter. By-and-bye they discover the presence of an enemy, up go their heads, and the hand-camera man who has been patiently waiting seizes the opportunity. Sheep are contradictory to the last, for when in a mass or quietly grazing, they are very uninteresting; they form a splendid study as soon as the head is raised and looking toward the camera with more or less interest depicted upon their countenances. Sheep are stupid, it may be said. I agree to a certain extent. But when they are really roused and endeavouring in their woolly heads to make out what is the

matter they form most interesting subjects. Now finally as to sheep. The old adage "following like a flock of sheep" is perfectly and absolutely true. If one starts to run, or to go in a certain direction, the others follow as "night follows day." If the hand-camera worker thinks that one or two will stay in a suitable position, he will be wrong. When one moves they all move, where one goes the others follow. And he must get them before such an event occurs, because he may just as well shut up his camera and go home if he does not.

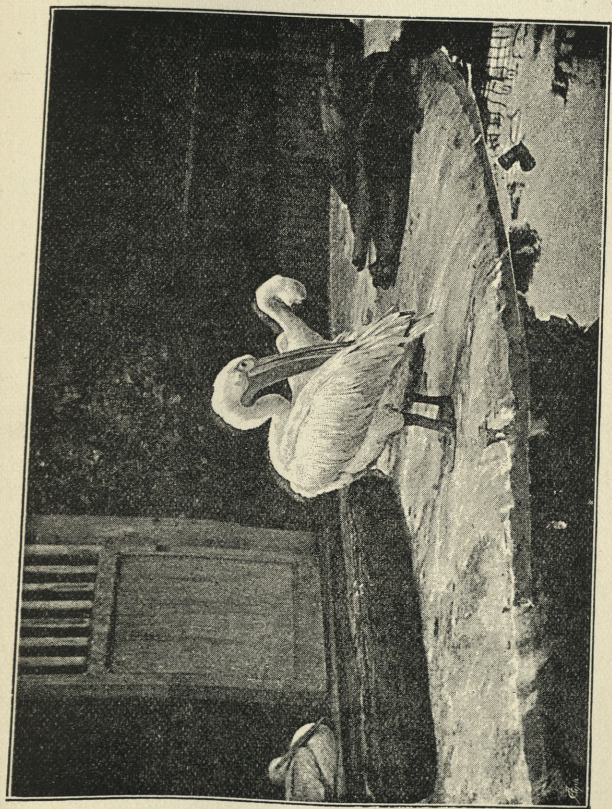
Cattle and horses are somewhat different. In the first place they are not so shy, and in the second "they stand not upon the order of their going, but go at once." That is, if a cow or

**Cattle and
Horses.**

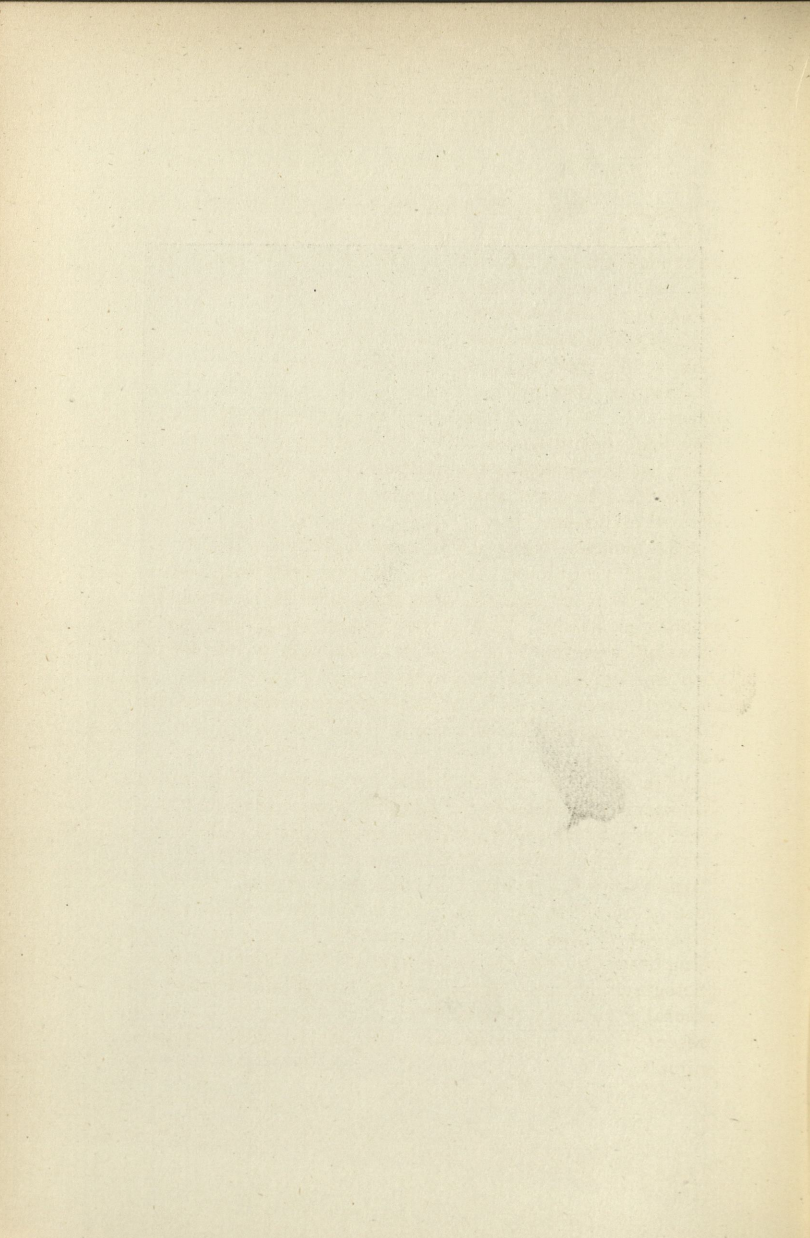
horse objects to the presence of the man—or the camera—it gets straight up and moves on. So that the opportunity afforded by sheep is not available. On the other hand, a dog is more useful. With sheep, the dog is apt to cause a wild stampede, but with cows and horses he is almost necessary to arouse a decent amount of life. I distinctly remember an occasion last year, when I was after some calves. It was impossible to do anything, until I went back to borrow a dog. They merely passed on in the most unconcerned and irritatingly cool manner. The dog, however, fetched them up to the mark, and the result was some good negatives.

Of course the foregoing applies to the usual run of cows as are found in the cultivated—civilised is a rather dangerous word—parts of Great Britain. But there are cows which are bulls—that is an Irish bull—and with these there is no difficulty whatever about interest. Quite the other way, in fact. The snap-shot man should get posted up on the subject, so that before he gets over the fence he can tell whether it is a cow or a bull. A little knowledge of this nature is not to be despised, for it may save a most undignified rush for the nearest shelter, and it may economise in the direction of profane language.

Ducks and geese in company are not bad subjects, but they



PELICANS IN THE ZOO, ANTWERP.



are ungainly. The waddle is not pretty, and when resting or still they are little better. Geese, too, are strangely behaved, and though it seems absurd to be frightened at the attack of a flock, yet it is on the whole better to first get behind the fence and argue out the matter later on.

Hens and chickens make good subjects, but they are very quick in their movements, and need a rapid exposure.

Goats are very much like sheep, but—a big butt sometimes—are not so easy. The only thing about a goat is that it is usually tied to a stick with a rope, and is therefore pretty largely at the mercy of the photographer. When they are not so tied, they need care in manipulation. I speak from personal experience.

Dogs and cats I have not referred to, because, whilst they are certainly “animals”—we all are for that matter—they are so tame or so domesticated, that there is no trouble in securing good shots. Cats, however, run small, and need a focussing camera to do them justice, one that can be used at about six feet distance, or even less. But both dogs and cats are worth attention, as their faces are most expressive, and they can be made to point a moral, title a picture, or adorn a tale.

With the wilder animals I have had no experience, except at Zoological Gardens, where the poor beasts are caged up and afford an easy mark for the hand camera. True, some of our pictorial advertisements depict a man with a hand camera sitting astride a tree, with roaring, raging lions all round him waiting to “have their portraits took,” or to make a good meal out of him. But I have not yet had the pleasure of being out in the wilds of Africa with a “Beat-em-all” camera, photographing lions, tigers, &c., as though it was the most natural thing in the world. Such a time may come, but at present I am content to visit the Zoo for shots of these animals.

CHAPTER V.

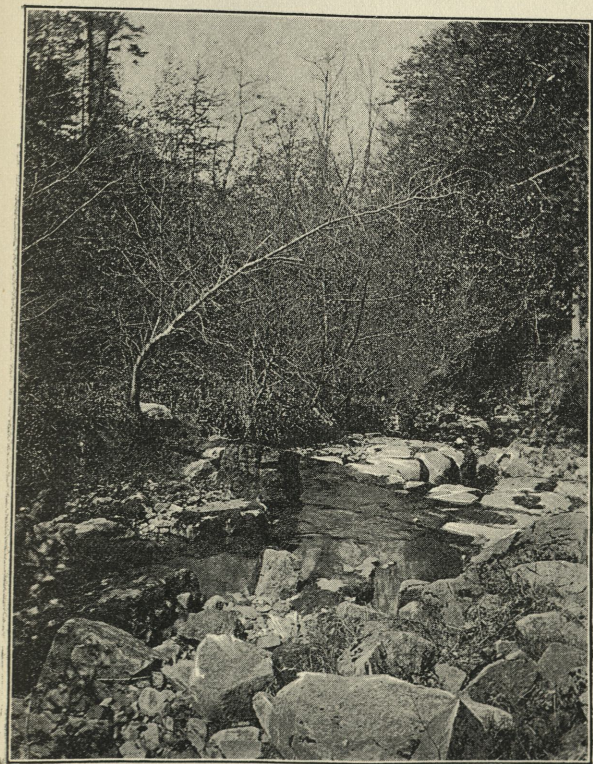
LANDSCAPES, SEASCAPES, AND VARIOUS.

“GOODNESS, gracious! landscapes with a hand camera; what a maniac you are,” said a friend to me the other day. I really admit there was a maniac somewhere round the spot upon which we two were conversing. But I very much dislike personalities of any sort or kind, and so I will only say, in good old schoolboy language, “it wasn’t me, sir.”

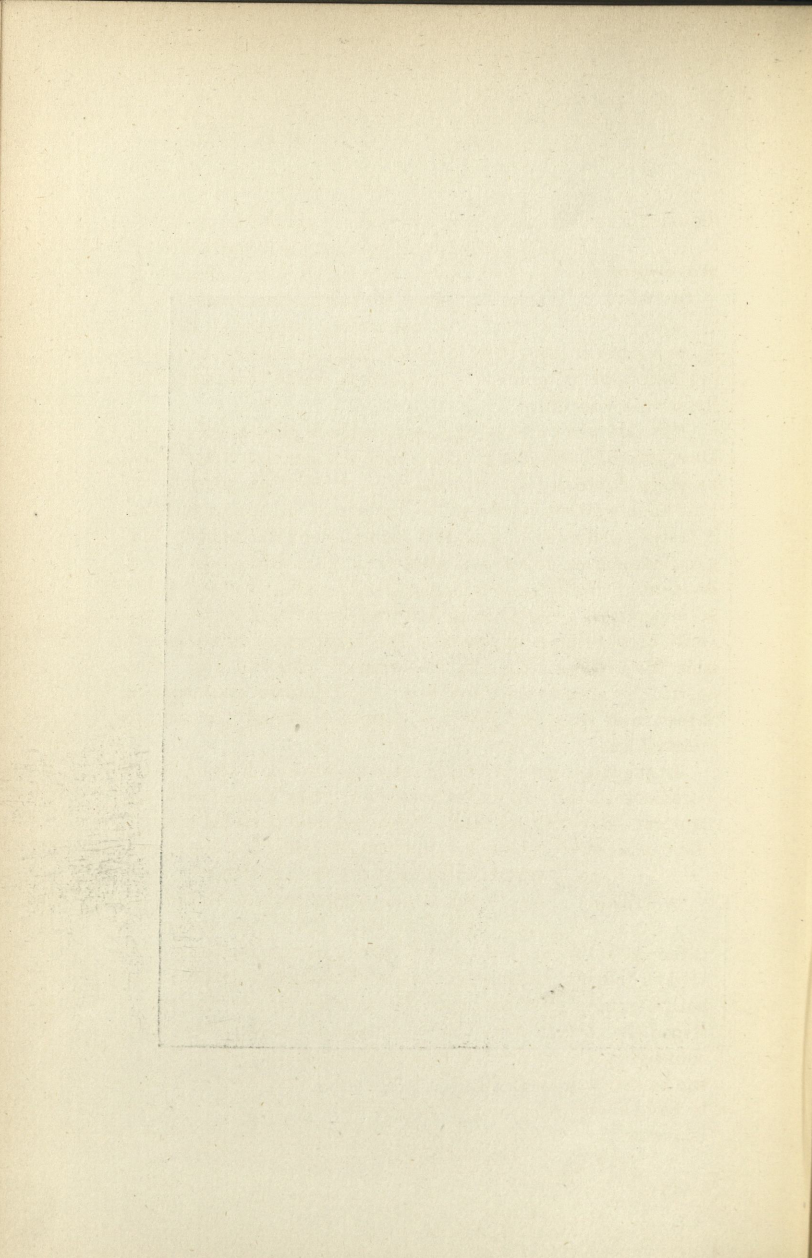
Landscapes in a hand camera? Please, good sirs, why not? If any of the exposure tables be consulted it will be found that, for an open landscape, brightly lighted, with an ordinary plate, working at an aperture of,

Exposure. say, $f/8$, the exposure is given at about one-tenth of a second; at $f/11$ it would be about one-fifth. Surely this is as easy to accomplish in the hand camera as in the ordinary. A shutter would be needed in any case. Moreover, an exposure of $\frac{1}{5}$ th second is not the slowest obtainable in the hand. By care and practice, as slow as one second ought to be obtainable without movement. I have heard of two, and even three seconds being given, but I very much doubt it, though there may be one or two workers skilful enough for even this.

The movement of the body by breathing is a factor to be contended with in any question of long exposure, when holding



NATTRASS GHYLL, CUMBERLAND.



the camera against the body in any way. This can be obviated in a measure by holding the breath during the exposure. For rapid work this is a capital means of aiding steadiness, and one that is constantly adopted. But in

**Movement of
the Body.**

an exposure of, say, two, or even one, seconds, the strain imposed by so doing is quite as likely to lead to movement as the normal breathing.

For slow work one of the best methods is to kneel on one knee, using the other as a support for the camera. Care must be taken to secure as comfortable a position as possible, so that no movement is caused by any strain in that direction. A tree, a fence, a seat, or, in fact, any support to the body, is a great assistance, and should always be taken advantage of. I have many negatives of streams, brooks, glades, and woodland scenery which were taken in this way, some of them receiving quite three seconds' exposure. The results are indistinguishable from those taken in an ordinary camera, and when viewed by those who think every hand camera shot *must* be taken in at least the $\frac{1}{50}$ th or $\frac{1}{100}$ th of a second are deemed marvellous.

In the foregoing I have not referred to using a stand at all, because that converts the apparatus at once into an ordinary camera. But with the many convenient and portable walking stick and other stands on the market, this is a very easy matter. There is one feature that in using a light tripod is worth attention, viz., the release of the shutter. Any push method is

A Stand.

rather at a disadvantage, as movement of the camera nearly always follows. A pull by means of a string is better. But both depend a great deal upon the power required, for upon a tripod the camera loses the advantage of the body support to counteract the push. The lighter the "feather" of the trigger the better, and those patterns which do not require the shutter to be held open, but can be released during exposure, are most convenient.

At the seaside there is no trouble as to exposure at all. The light at the coast is at all times about one-third more actinic than inland. Nor is there any difficulty about subject.

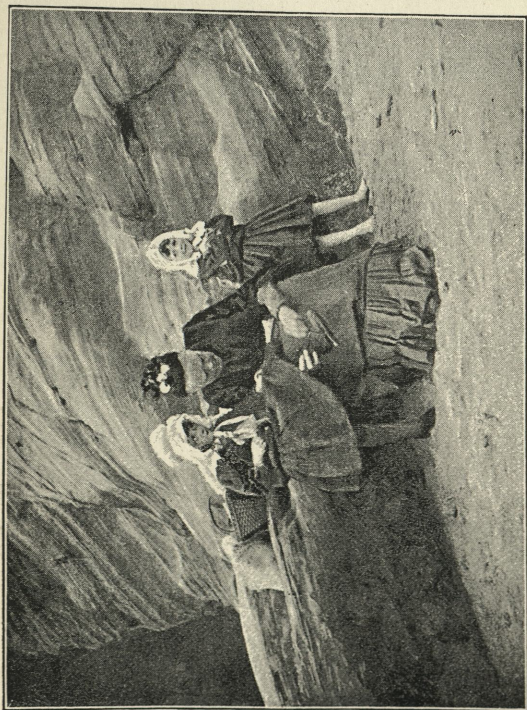
First the beach, with the children playing, paddling, or building sand castles, the nigger and other entertainers, the loving couples, boats putting off for a sail, white-winged yachts flying about, arrival and departure of the excursion steamer, and innumerable subjects. In fact, the trouble at the coast is not what to take, but which. There is but little to say on the subject, however, except that neither sea-water nor sand are good for the camera, and care should be taken to avoid their entrance. Water is pretty easily guarded against, but sand will be found a most insidious foe.

Sunsets are, as a rule, most effective studies, and, of course, the West Coast should be sought for these. Plain masses of clouds and water are improved by a boat or other object as a relief, or central object. And in taking children paddling, we should not be afraid to use the camera against the light. Some most charming pictures are to be thus gained.

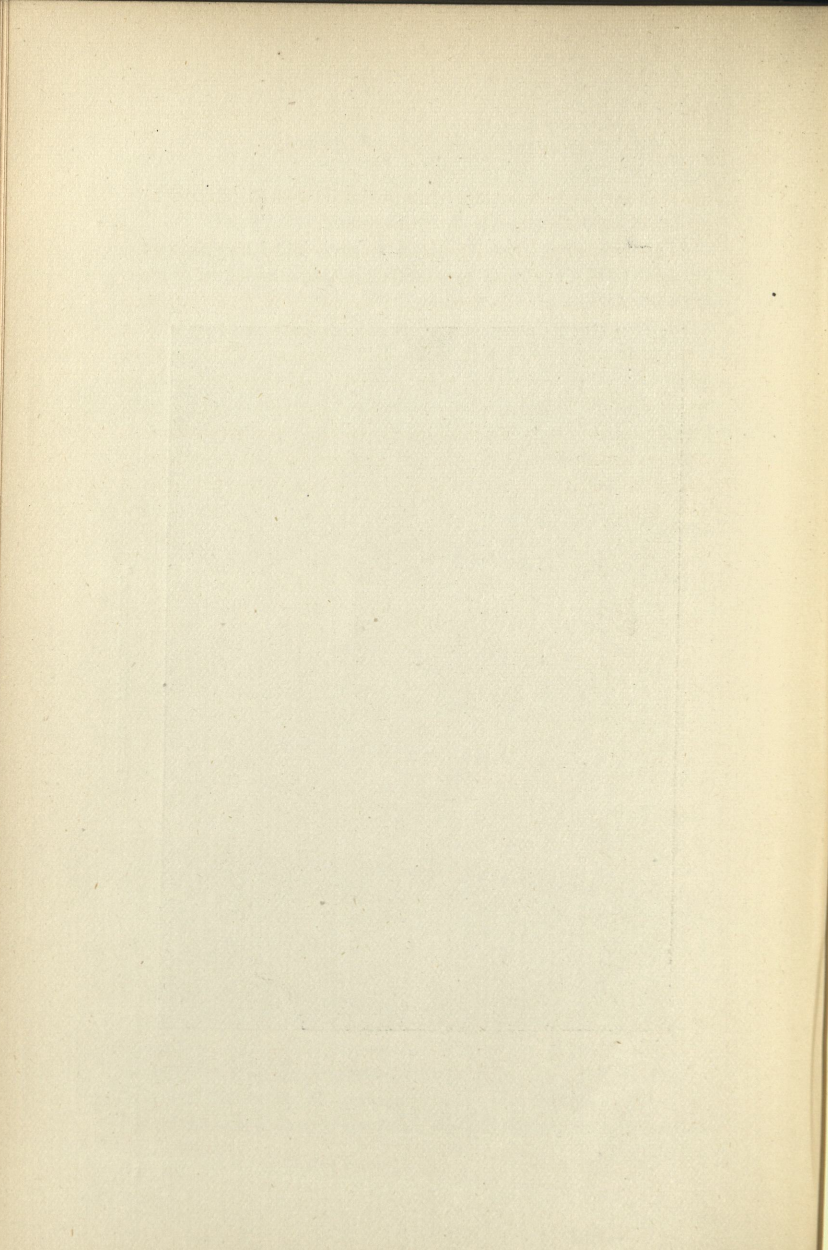
Wave catching is interesting, not to say exciting, at times. Jonas Chuzzlewit's motto was,

"Do men, or they'll do you."

Waves. And with waves it is oftentimes a question whether the worker catches the wave on his plate, or the wave catches him. This interesting feature, however, is largely governed by the light and by the formation of the pier, rocks, or beach. On the East Coast, for example, the light is principally from the sea, so that it is necessary to get well out, and occasionally by doing so we get well in also. But, however the matter may be regarded, it is undoubtedly easier to obtain wave pictures with a camera held in the hand than it is when using a tripod. When the flight for life—or rather the flight for dryness—comes, the tripod and its burden is a serious point of impedimenta. We therefore generally take that fact into consideration when after waves, and venture



"BOTHER THIS PADDLING."



nearer with a hand camera than we otherwise should do and probably get better results in consequence.

This needs but little attention, because what has been said as regards the exposure for landscapes applies equally well. On the question of size, however, I might point out that fixed focus lenses are at a disadvantage in taking

Portraiture. portraits pure and simple. This can be grasped very quickly. If everything is in focus at 15 or 20 feet the lens must be of short focal length, and the size of the figure is consequently small. For portraiture, a camera arranged to focus sharply at eight feet, or even less, is desirable—that is, if we desire to get a figure the full size of the plate.

CHAPTER VI.

PLATES AND DEVELOPMENT.

○ ONE of the very first questions asked by the novice is, "What plates do you use?" He appears to imagine that something working faster than greased lightning is necessary. At all events, the most rapid brand possible to obtain in this country should be sought.

Speed of Plate. Now, at the very outset, this is a mistake.

It is not advisable, it is not necessary. It is not advisable because when the novice fails he blames the camera, and not the plate or exposure. "These plates," he says, "are So-and-so's world-renowned one hundred and twenty times; *they're* all right. It's the beastly lens that is at fault, or the shutter, or the camera, or the"—well, no, he does not add the "man." My maxim has been for many years, not only with the hand camera, but with the ordinary as well—use the slowest plate possible. I am perfectly well aware, for I have been told so over and over again, that I am wrong, that it is better to use a fast plate and perchance over expose, than a slow one, and have to force it. I can only say that theoretically I have never studied the matter at all; but practically the experiences of five years' work with the hand camera has only served to confirm the impression of earlier days, viz, to use always the slowest plate permissible.

The wherefore of this is a perfectly natural question, and the answer is, that to obtain the necessary pluck and vigour—in fact, to get a negative worth looking at at all—is more difficult

with extra rapid plates than with slower ones. Any reader can readily try this for himself. Many of our English brands are issued in three rapidities, ordinary, rapid, and extra rapid, or some corresponding terms. I will take the Ilford plate to illustrate my remarks. Not that I desire to imply that it is superior to all others, or is the only one, but because it is so widely known in this country, at all events, that it forms the easiest comparison. The reader need only try one of each kind, the yellow, white, and red labels, expose them in strict relation to their stated rapidities—and, for the sake of argument, I will assume that in each case his exposures are correctly timed—and then develop. I fancy he will find that the yellow develop easier, and more quickly, and give on the whole more brilliant negatives. Next will come the white label, next the red. And, so far as I have tried, with every make in the market the same rule holds good.

It must not be imagined that I advocate the exclusive use of slow plates. I do not. There are occasions when rapid plates are a necessity, and the fact should be recognised and complied with. But the point is this, if we choose the day and subject, there is no need for rapid plates; if we wish to secure some particular shots occurring on a fixed date and at a fixed time, then it may occur that the exigencies of the actinic power of the light require a more rapid plate than we usually use. These occasions certainly do arise, but what I have striven to make clear is that they are exceptional.

The general idea about a hand camera is that, in consequence of the rapid shot and the enormous (*sic*) speed of the shutter, the very fastest plate and the most energetic developer must be used. It is this impression

Fast Plates. I am fighting against. As I pointed out in the last chapter, it is only necessary to consult an exposure table to prove that when working at such large apertures as $f/8$ and $f/11$, we are apt in our usual life to overlook the fact that the exact exposure is probably a large fraction of a second. With the ordinary camera our powers

of speed are limited by the movement of the hand in taking the cap off and putting it back again. And when it comes to using a shutter, we wander away into calculations of the one-thousandth part of a second, whereas probably that shutter cannot work faster than the one-fiftieth or one-hundredth at the very outside, even if an oilcan be emptied over it beforehand. The point I would fain make is that we are bad arithmeticians when considering the hand camera. We do not calculate, we jump. Accustomed to a slow plate in an ordinary camera, using the lens at an aperture of $f/8$, say, as soon as the hand camera is tackled, even with a lens at the same aperture, the speed of the shutter is so over-estimated, or the fact that *it is a hand camera* is so dreadful, that the twelve times table is used instead of the three in multiplication.

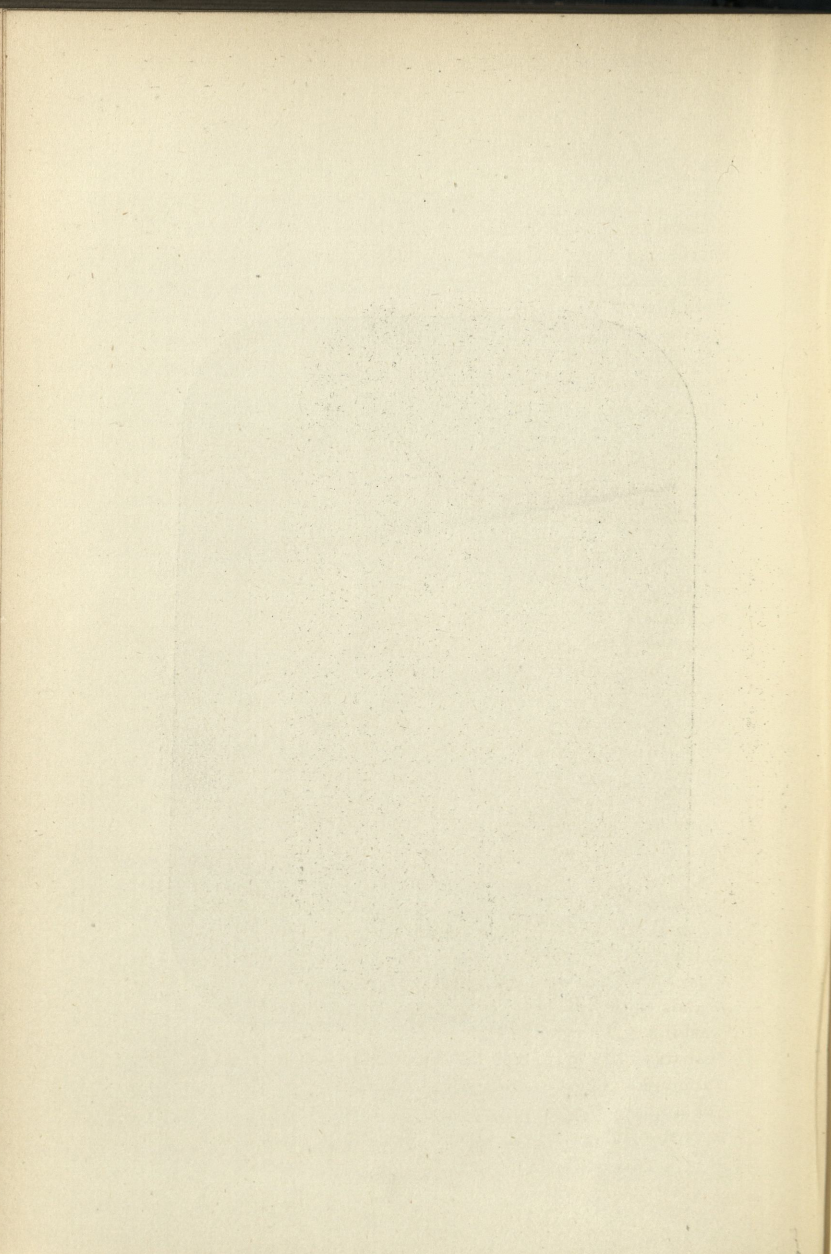
It amounts in all to this, that in taking up a hand camera the worker puts aside all exposure tables, all relative strengths of light—in fact, everything he has learnt from the use of the ordinary camera. He makes a clean, unassisted jump into rapid work—and jumps too far.

I may say with confidence that the great bulk of my work has been done with ordinary speed plates.

"It is a good divine that follows his own instructions," 'tis said, but in urging the use of slow plates I can distinctly lay claim to being "a good divine." Because for years, in spite of numerous experiments, I cannot alter the opinion formed, which is, use slow plates whenever possible. At the coast it is rarely necessary to use rapid plates. In the narrow streets of a town, however, it is sometimes advisable. I often think the misconceptions upon these points arise from the fact that the experienced hand-camera worker generally ventures out when the conditions of light are favourable, whereas the beginner wants to use his camera at any time and in any light. He fails, and then the plates are termed vile, "wanting in the common decency of silver," or as slow as a telegraph boy. If not the plates, then it is the camera. It is badly designed, wretchedly



WHEN THE RED SUN SINKS TO REST.



constructed, altogether a wrongly advertised article. And another camera is forced into an early grave.

So much for plates, now for the development of them. Here I feel I shall be set down as a fraud. From questions that have been asked me in the past, I am certain that some special formula or method of procedure is

No Welford expected at my hands. I have none. Not
Developer. only is there no Welford hand camera, but there is no Welford developer that snap-

shottists can order by "the gallon." I feel utterly miserable over the matter. My name will never appear as the founder of a developer that removes all obstacles from the path of the worker, is given away with each pound of hypo, or is warranted to make the hair grow on the baldest spot, or, to put it photographically, will produce detail in the darkest shadow. I confess with the greatest humility that all the formulæ I can give are of the common or garden variety. It is not my fault, it is fate. Kismet! I have tried every developer under the sun—and in the dark room—without avail. In fact, I am almost disposed to agree absolutely with friend Pringle as to the merits of our old and well tried ally, pyro. The only point is this, if we can get detail first and density later by first soaking in the alkali, the formulæ that give this power are valuable. The difficulty, however, that creeps in is that all plates are not suitable for one developing agent. This may be a back-handed way of putting it, but what I mean is that some developers are more adapted to certain plates than are others. If, therefore, the accelerator varies in its suitability to the various makes of plates, it appears not unreasonable to expect that the method of procedure may vary too. Some brands seem to revel in a previous soaking in potash or washing soda, whilst others again are not so easy to work that way. Now, if we take into consideration the fact that ammonia does not lend itself at all well to this method, and yet a plain pyro-ammon. formula used in the ordinary way may suit the particular plate best, it is, on the whole, better

to relinquish the previous soaking method and develop in the ordinary way. Ammonia has, in my hands, always been much more fickle in its behaviour with the various brands of plates than either soda or potash, though I cheerfully admit that when working correctly no other agent is superior.

Turning now to the method of previous soaking in the alkali, either soda or potash, my attention was drawn to the point some four years ago in turning out a few of my earliest dry-plate negatives. These were taken in

**Washing
Soda.**

1876 or 1877, and developed by first soaking in a simple solution of washing soda, the pyro being added dry to the dish. When I think of the rough and ready method adopted, the soda solution merely poured over the plate from the bottle, the pyro afterwards being added to the dish, I feel somewhat horrified. But yet in spite of the unpleasant yellow tone, the negatives are simply crammed with detail. Upon experimenting, I found that the dry plates of the present day for some reason or other were not so amenable to the same treatment, although the results were not at all bad. So I tried replacing the soda by potash, with considerable success, and can assert it to be, with at least three brands of plates, the best developer. The drawback is that the building up of the image is a slow one, and the plate takes a deal of soaking in the mixed solutions to get the proper degree of density. But if there is any one point more certain than another about the development of rapid exposures, it is that it takes time and patience. The washing soda formula is often asked for, so I give details. It is simply as follows:—Steal into the pantry when the other members of the family are safely asleep or out, and “borrow” a pound of common washing soda. Dissolve it in boiling water, transfer it to a gallon bottle when cool, and fill up with plain water. To develop, pour out as much as required to well cover the plate, soak for about one minute, during which the pyro is placed in the measure glass. At the expiration of that time the soda solution is poured into the measure glass

to combine with the pyro, and the mixed solutions poured over the plate. With some makes of plates the addition of a little bromide of ammonium is almost a necessity.

The Beach potash-pyro formula was a great favourite for many years amongst amateurs, though I fancy it is not so much used now as formerly. All my earlier work was done with it; but for some reason or other, either

Beach Potash. a slight change in the emulsions or a difference in quality of the potash itself, of late it has not been so reliable, even with the same make of plates as before. The formula is as follows:—

A.—PYROGALLIC ACID.

Sulphite of soda	4 ozs
Warm distilled water	4 „
Sulphurous acid water (strong) ..	3½ „
Pyro	1 „

The sulphite of soda is dissolved in the warm water. This is slightly troublesome, as four ounces of sulphite melted in four ounces of water is a very strong solution. It is a good plan to put the sulphite and water in a large cup or jar, which in turn is placed in a saucepan and held over a moderate fire. Constant stirring will then rapidly cause complete saturation. This solution must be allowed to cool down considerably; in fact, until quite cold. Then the sulphurous acid is added, and out of doors, if you please, with the nose kept away from the bottle. Lastly, add the pyro, or, more conveniently, pour the solution into the pyro bottle.

B.—POTASH SOLUTION.

Carbonate of potash	3 ozs.
Sulphite of soda	2 „
Water	8 „

Taking half the quantity of water to each chemical, dissolve separately, and combine into one solution later on. In use I poured the potash solution ($\frac{1}{2}$ dram of B to 2 ozs. of water) over the plate, and soaked it for a minute or two. Then the pyro was added (1 dram of A), and the image quickly makes

its appearance. It will be observed that there is no restrainer. In nine cases out of ten it is not necessary, but I have used plates which absolutely required a few drops of a 10 per cent. solution at all times.

In the way of pyro developers the three already given, viz ,
 ammonia, soda, and potash, are those I
Pyro have used the most. There are, however,
Developers. several others which may prove of service
 to some readers—

PYRO SODA.

No. 1.—Pyrogallic acid	..	..	1 ozs.
Soda sulphite	..	..	6 „
Sulphurous acid	..	..	1½ „
Water	..	..	18 „

The order of mixing this is the same as the Beach formula, but there is no difficulty in this case in dissolving the sulphite.

No. 2.—Washing soda	..	..	6 ozs.
Water	..	..	18 „

Take one dram of each, and make up to 2 ozs. with water.

PYRO SODA.

No. 1.—Pyrogallic acid	..	..	40 grs.
Sulphite of soda	..	..	320 „
Water to	..	..	10 ozs.
No. 2.—Carbonate of soda (crystal)	..	..	320 grs.
Water to	..	..	10 ozs.

For use take one part of pyro to 1½ parts of soda.

To formulæ there is no end. To start with, each make of plates has its own special one, and as if we take pyro-ammon. as a standard, the relative proportions alter very considerably, it seems almost absurd to give any formulæ at all in a general way. I had good proof of this last year upon developing some 400 plates by three makers after a trip. The exposures were nearly all the same, about $\frac{1}{50}$ th of a second in a good light and working nearly all through at f/11. All these plates were of the same rapidity, or, at least, as near as plates can be made

to that end. A few failures set my thoughts in the direction of investigation, and this is what I found—

Plate A.—1 part pyro, 1 part ammon., 1 part bromide.

„ B.—1 „ „ 7 „ „ 1½ „ „

„ C.—1 „ „ 3 „ „ 1 „ „

Now the respective formulæ gave nothing like so great a variance. I used the same solution throughout, in the proportions as above, and the results were of uniform quality.

Plain pyro and ammonia is very much quicker in action, but when used in the ordinary way is apt to give hard contrasts with a lack of detail. Increasing the quantity of ammonia generally results in a flat image.

Pyro and Ammonia.

I got over the trouble in this way, and as it is a method constantly adopted when a number of plates have to be developed at one time, I will describe it fully. In a 15 × 12 dish I mix some of the pyro solution with a lot of water. This I call the soaking dish, and into it I pass each developing solution as soon as done with. Using a whole-plate tray, four plates are inserted, and the developer rapidly poured over. This solution is a plain pyro-ammonia one, as follows:—

PYRO 10%.		AMMON. 30%.	
Pyrogallic acid ..	480 grs.	Liq. ammon. .880 ..	3 ozs.
Am. brom.	480 „	Water to make up to	10 „
Citric acid	60 „		
Water to make up to	10 ozs.		

The proportions are 20 min. of each to each ounce of water. If this be too strong in ammonia, reduce to 15 or even 12 min. The result is the very rapid appearance of the image; it flashes out almost at once. As soon as fully out, the plate is removed to the soaking tray and left. If the development had been continued in the first solution, the result would be flat, but by removing them to the soaking tray pretty quickly, proper density is gained.

There is another advantage in this method, it is the quickest way of developing a big batch of, say, 200 plates. There is no

way and no solutions that will deal with a big number of plates so quickly. True, the soaking is long, and perhaps several trays are required in the end, but a compensating advantage is given by the rapid appearance of the image, which enables one to quickly remove a "wrong-un" from the dish.

The moral of this is doubtless the well-cried cry, "Stick to one plate." But here the hand-camera man finds a difficulty. He, as a rule, uses five or six times the number of plates that

**Using One
Plate.**

an ordinary camerist (new American term) would upon a trip. Moreover, the hand camera is so convenient to use that many opportunities arise to expose plates totally unprovided for. The stand-camera man starts out for certain work, and does it. Anything that he may see on the route he passes by, owing to the trouble and labour of unpacking and repacking his apparatus, to say nothing of the case of an incident or picture more or less fleeting in nature. Not so with the hand-camera worker; his apparatus is always ready, and when the temptation comes he need be very strong to resist it. Therefore comes it about that he almost invariably uses more plates than intended, and a flight to the nearest dealer's is the next resort. Then comes the difficulty; he may be able to obtain his favourite brand of plates, but if the town or place be a small one the chances are against him.

Personally, the actual make of plates I use troubles me but little when travelling about. Of course, like everyone else, I have predilections, but no desired shots have ever yet passed scathless for want of any special plates. It therefore follows that any one standard developer is a mistake, unless it be capable of infinite modification, and the conclusion I have come to in this matter is that a plain pyro and ammonia formula gives better opportunities in this respect than any others.

Hydrokinone came into the field with banners flying, but it has not come to stay—as a developer

Hydrokinone. for instantaneous work at all events. The results are lovely as far as the appearance of the negatives is concerned, but though vigour and pluck are

easy, detail is wanting. About the best formula for hydrokinone is that known as Thomas's, which is—

No. 1.—Hydrokinone	..	..	160 grains.
Sulphite of soda	..	..	2 ounces.
Citric acid	..	..	60 grains.
Bromide of potassium	..	..	40 „
Water to	..	..	20 ounces.
No. 2.—Sodium hydrate	..	..	160 grains.
Water to	..	..	20 ounces.

If this be used in equal proportions full strength until detail is well out, and the plate then immersed in another solution diluted with five or six parts of water, and then soaked, good results are obtained. It, however, requires careful watching when using different makes of plates, as the action is very rapid. A simpler formula is the following:—

No. 1.—Hydrokinone	..	..	30 grains.
Potash, meta-bisulphite	..	..	40 „
Water	..	..	2 ounces.
No. 2.—Carbonate of potash	..	..	180 grains.
Water	..	..	20 ounces.

One dram of No. 1 is added to $2\frac{1}{2}$ oz. of No. 2. For a good one solution formula, and some amateurs like to have only one bottle to bother with, I can recommend the following:—

Sulphite of potash	..	..	90 grains.
Carbonate of potash	..	..	8 ounces.
Bitartrate of potash	..	..	180 grains.
Water	..	..	32 ounces.
Hydrokinone	..	..	1 ounce.

The three potashes are dissolved in the water and then filtered, the hydrokinone being added afterwards.

Eikonogen was the next comer, and the cry was “Detail, detail,” and it was prophesied to be a most vigorous reducer.

That is just where it fails. It certainly is

Eikonogen. powerful enough, but it is difficult to get density with it; in fact, altogether it is a

tricky agent to work with at any time, and very slow in action

True, I got in the winter of 1890 some very excellent frost and snow studies by using it, but it was such painfully slow work developing that it made the task quite a nuisance. I cannot deem it either good or reliable enough for everyday work. One formula is as follows:—

No. 1.—Eikonogen	..	..	..	40 grammes
Sulphite of soda	..	..	..	3 „
Water	..	..	..	500 ccm.
No. 2.—Carbonate of potassium	..	..	..	70 grammes.
Water	..	..	..	500 ccm.

In use equal parts are used. A good one solution formula is the following:—

Eikonogen	..	..	..	120 grains
Sulphite of soda (crystals)	..	..	..	1½ ounces
Hot water	..	..	..	8 „

After this is completely dissolved, 120 grains of carbonate of potassium are added. In use it is diluted with an equal part of water, and a few drops of a 10 per cent. solution of bromide of potassium added. For great under-exposure the water and bromide can be reduced. My experiences with eikonogen have always pointed to the need of some other developer with which to gain the required vigour, and the use of a hydrokinone solution, fairly well restrained with bromide of potassium, answers very well.

The combined eiko-hydro solution was the outcome of a similar experience in the trials of others. But I cannot say that I find the slightest advantage in combining the two. Still, as there are adherents to this method of development, one formula I have found best is quoted.

No. 1.—Hydrokinone	..	..	..	20 grains.
Sulphite of soda	..	..	..	60 „
Water	..	..	..	3 oz.
No. 2.—Eikonogen	..	..	..	17 grains.
Sulphite of soda	..	..	..	66 „
Water	..	..	..	3 oz.
No. 3.—Carbonate of soda	..	..	..	125 grains.
Water	..	..	..	3 oz.

Equal parts of each are taken, restraint being promoted by adding water to the mixed solution, and acceleration by increasing No. 3. At the same time, No. 3 must be very carefully used, or fog ensues at once.

Para-amidophenol, or as it is called for brevity's sake, rodinal, was introduced at the end of last year. It must be admitted that it is capable of, perhaps, the greatest amount of concentration of any developer now in use.

Para- This proves its vigour and power. In its
amidophenol. usual form it requires diluting with thirty times its bulk of water, and therefore a very small bottle is required of the actual chemical. It possesses two other very marked advantages: It does not stain the fingers, however long either the same solution may be used or however long the fingers may be of necessity constantly dipping into the solutions, fresh or otherwise. The other advantage is that it appears to weaken but very little by exposure to the air, and a large number of plates may be developed in the same solution. It promised so well for hand-camera shots that I have given it considerable attention. I have tested it in every way possible, varying exposures, plates and method of development, to an extent that has cost me a good deal for plates. In fact, I have tested it enough to satisfy myself that though it is more powerful than pyro, that it will bring up images that owing to under-exposure pyro will not, it will, nevertheless, never supersede good old pyro. My readers must not consider me one of those old-fashioned workers that, though willing to try new things, are yet so prejudiced in favour of the old, that everything is done to prove the standpoint "I told you so," or "I knew it all along." In the first place, I am not old, and in the next I am always desirous of obtaining some reagent to replace pyrogallic acid. But rodinal will not do it. For certain work, perchance, there are advantages to be gained, but, generally speaking, rodinal will never replace pyro.

My first experiments augured well. As a dilution of

thirty parts of water was recommended, I tried eight, with the result that the whole plate was covered with detail in a fraction of a second—and covered with fog. Next came twenty times, with the result of very rapid development of what I thought was detail. It seemed a very easy matter then to get density, but further dilution did not attain that end. It merely slowed down the action. My next resort was to a hydrokinone solution to give density, and it worked magnificently. Development at a strength of twenty parts of water to one of rodinal was wonderfully speedy, and a soaking for two or three minutes in hydrokinone solution gave all the density required. In fact, it seemed possible to get density to command exactly as required. It appeared as though the snap-shot man's millennium had about arrived. But this was with the negatives. When it came to the prints it was pretty evident that the hydrokinone had merely increased the density of the high lights, and leaving the shadows quite as clear as they were before. No means that I have been yet able to discover gets over the difficulty. Of course, please understand that I am talking of rapid exposures only. To sum up the situation briefly, rodinal is difficult to work by itself, as the images are too flat, and if supplemented by immersion in hydrokinone a sort of intensification action takes place. The contrast is increased, but the detail is not improved.

Can it be that the greeny-brown tone of pyro negatives helps them? Hydrokinone, eikonogen and rodinal all give black or grey tone negatives, beautiful to look at, yet disappointing to print. Whichever chemical is used there is too much clear glass. Pyro appears to cover up the clear shadows, to fog them in a measure. The results, to my mind, are exactly similar to those obtained upon gelatino-bromide plates, as compared to the older wet-plate process. Quite recently I saw the statement that the present everyday negative was in nowise equal to that taken on a collodion film by the old process. What is to be done with a man who writes that way?

I am quite satisfied that, up to the present, there is nothing to touch pyrogallie acid for the development of hand-camera shots; it is an all-round useful agent, and a successful one. At present there is nothing upon the market equal to it. I cannot theorise upon the matter, nor am I a "photographic expert." All that is necessary is to go to the boxes of negatives or the album of prints. Comparisons are odious—to hydro, eiko, and rodinal.

Before concluding development altogether, I should like to say a few words as to method of work. Of course, very much depends upon the number of exposures the worker is in the habit of making, whether two or three, a dozen, or fifty at a time. In any case, nearly all of us are bound to have a big

Method. batch at some time or other. But now, presuming that a fair number has to be dealt with, it is certainly a mistake to develop them singly. I do not mean only on the score of the extra time taken, but also because my experience points to more even results when developed together in one dish, 4, 6, 8 or even 12 at once. Even with a dozen to do, I make three fours of it. As most of the exposures are made under much the same conditions, there is no need for elaborate pains in development. All that is required is the correct solution for one, and the others will be all right also.

And now a last word, whatever formula is used, strive for quick appearance of the image and detail. Let density take care of itself. That you can obtain by prolonged soaking, or by after intensification. Let detail be the first aim.

CHAPTER VII.

VARIOUS.

P R I N T I N G methods hardly need treatment in these articles, as they should end with the production of the negative. But a few remarks will not be out of place, especially with one point in view. This is, that the processes

available for prints $8\frac{1}{2} \times 6\frac{1}{2}$, or larger, are not bound to be suitable for such small prints as those obtained from hand-camera negatives. Indeed, almost the reverse might be held to apply. A hand-camera shot, as a rule, gives us a fairly wide expanse of view, with a multitude of very small and fine detail, so that the effect of matt-surfacing and rough paper are generally unsuitable.

If there is any one paper more suitable than another, it is the gelatino-chloride kind. I do not like the highly-glazed surface in large prints, but for the *majority* of hand-camera shots it is undoubtedly the best thing possible to obtain. Even if a matt surface is so much preferred that other considerations are thrown aside, I think gelatino-chloride paper squeegeed down to ground glass gives the best result. The negatives as a rule "run thin," and this paper suits thin negatives, whilst for the best possible amount of detail the glaze is unapproachable. Another point, too, is that, owing to rapid exposures, the shadows are often heavy, and this defect is undoubtedly mitigated by glazed prints.

Of course I do not for a moment assert that no other paper is of any use. That would be nonsense. Many of my own negatives, for instance, give far better results in silver

albumenised or platinotype papers, owing to density and brilliance of the negative. Indeed, some are quite unprintable upon any gelatino-chloride paper. But, as a general rule, a safe one to go by, any brand of print-out emulsion papers gives the best result. My personal leaning is to such a paper, toned with platinum to a warm sepia tone, and finished with a matt surface. For this purpose I use spoilt celluloid films, finding them better than anything else for the purpose.

The usual plan up to the present has been to put six or more prints upon one mount. This has the advantage of economy, but not of artistic effect. Even allowing that they are all mounted

true and straight, which is very often not the case, the effect of the little dabs of prints in a wilderness of mount is striking to the eye, but not pleasing. There is also another

objection, which is that the eye cannot study one print without unconsciously taking note of another at the same time. This diverts the thoughts, and prevents the attention being centred as it ought to be. I am therefore of opinion that for the best effect each print should have a separate frame.

Possibly the first objection raised to this is the expense. But this will not bear much investigation. Presuming there are 12 prints—to take a sample case—a good quality frame with a cut-out mount on the one side and 12 single frames on the other. Let us take the large frame first. For 12 prints it must be at least 24 x 18 (sight size), or the pictures will be unduly crowded together. The cut-out mount is almost a necessity if the thing is to look well. The following is a rough idea of the cost, taking a fair average frame:—

	s.	d.
Frame, say	5	0
Cut-out mount, mount 1s. 6d. and 11 cuts at 2d..	3	4
	<hr/>	
	8	4

The frame is, readers must confess, put down at a moderate figure. It could doubtless be got for less, though not very

much. And what it *might* cost, according to the moulding or design, readers must surmise for themselves.

On the other side, let us take twelve single frames, and see how they pan out. A very good frame can be obtained by the gross, or even by the two or three dozen, at 9d. each, rebate 5 × 4 say, which would make the cost of a dozen 9s. So that on this score there is not very much gain by putting twelve in one frame. In case the statement as to 9d. each is doubted, I hasten to say that the gross now under way (with which I intend to startle the world)—this is put in parenthesis in case it should not do any startling—will cost £4 10s. This is 7½d. each. Of course, if elaborate frames of English gold are required, the price will be nearer 5s. each. This is, I believe, what Mr. Austin C. Edwards paid for his. But then he does not—as yet—buy them by the gross.

The only other consideration that is worth any attention is when the entrance fees for an exhibition are fixed *per frame*. This would seem a case of 12s. *versus* 1s. But I do not think

the exhibition authorities would draw such

Exhibitions. a hard and fast rule. If the twelve frames were attached to a neat board, cloth covered, it would doubtless be allowed to pass as one frame. At all events, Mr. Edwards does this, though how he gets on, or would get on, with the exhibition folks I am unable to say. But I cheerfully admit that his frames, resplendent with English gilt moulding as they may be, have made me very much disgusted with my own muddled-up lot in one frame. I mention Mr. Edwards because I consider him the pioneer in this respect.

“What on earth do you do with all the prints?” asked a friend the other day, to which I replied that they were all carefully placed in albums. “Oh, but consider the fag of it,” was

the rejoinder. The argument is worth follow-

Albums. ing. What do we “press the button” of our hand camera for? Is it to show that we can do it? Are we secret agents of the plate manufacturer? or is it

for fun? Nothing of the kind. The plate is exposed in order to obtain a picture that will interest not only ourselves, but those around us; that will not only be a pleasant *souvenir* of a trip to the one who enjoyed it, but to show others the sights, the views; the life seen, appreciated, and recorded by our negatives. But the negative is only one step, the print is the goal. Therefore, "What shall we do with our prints?" is now the question. The reply is, arrange them in albums, and the more systematically the better.

Upon this point my own methods may be of interest, if not of use. The first consideration was portability, so that three or four might readily be carried in the pocket to entertain a friend, or pass away a quiet half-hour. For this purpose none of the special albums issued are so good as the sixpenny sketch books (5s. per dozen), which may be obtained from any artist *dépôt*. The leaves, which are intended for sketches in black and white or water colour, are of thick drawing paper. The backs are of white canvas, upon which the title or name may be readily written in ordinary ink. These albums contain prints from all the negatives that are worth keeping, and form, in a way, a sort of negative register. A few of the albums are here specified:—

- | | |
|---------------------------|----------------------------|
| 1.—Street Scenes (No. 1). | 11.—Clouds, Sunsets, &c. |
| 2.— „ „ (No. 2). | 12.—Torquay, Marine. |
| 3.—General Views (No. 1). | 13.—Torquay, Various. |
| 4.—Birmingham. | 14.—Frost and Snow. |
| 5.—Animals (No. 1). | 15.— { Liverpool Trip. |
| 6.— { Newcastle Trip. | { Gloucester „ |
| { Coventry Fair. | 16.—Antwerp. |
| 7.— { May Fête. | 17.—Rotterdam. |
| { Haymaking. | 18.—Animals (No. 2). |
| 8.—Plymouth and Falmouth. | 19.—Street Scenes (No. 3). |
| 9.—Athletic (No. 1). | 20.— { The Fête. |
| 10.—Cardiff Trip. | { Ventnor Trip. |

These I give as a sample only. The canvas back allows of the easy writing of these distinguishing titles and reference

numbers, and each album contains a complete record of every negative secured.

There are many albums issued, entitled "snap shots," but these cost at least, even by the dozen, 9d. each. It is, however, not so much on the score of expense that I prefer my own selection, but that of portability, for one thing. And here I should like to get in a grumble. Why are these albums for hand-camera prints issued in such a square pattern? Nine-tenths of our shots are landscape way, and therefore the albums ought to be arranged to suit. But of the many placed upon the market, only one, so far as I have seen, recognises the fact. This is the pattern issued by Messrs. Morley and Cooper, of Islington. But my albums, even then, possess the advantage of being less bulky. Cardboard leaves and complete mounting are, to my mind, a mistake. First of all, the leaves are nearly certain to buckle; and next, the print is a fixture. I attach mine by the four corners, using a gum brush, and although the print adheres firmly enough for all ordinary purposes, it can yet be stripped off, should occasion so arise.

So much for the convenient gathering together of prints in a systematic way. Let me now add a good word for the various album producers and designers, and it is this, that whilst the sixpennyworth does very well for reference, or for systematic registration, the neat albums sold for snap shots are extremely tasteful for the exhibition of our best work, for selections of the fittest. Prints nicely mounted in an album consisting of India tint boards, with elegant exterior binding, such as are offered at extremely moderate prices, are very attractive to our friends. These I manage by making selections of the best. Whilst the canvas back is a sort of negative register, a pictorial list of negatives obtained, the snap shot album is one I place in the hands of a non-photographer. It is a selection of the best, the other is a print from every negative—in fact, a kind of illustrated negative register.

The best plan is that of the old-fashioned grooved plate boxes. The negatives are all small, $\frac{1}{4}$ -plate or 5×4 , so that

what is almost impossible with our ordinary negatives, owing to their size, is an easy matter with those taken in a hand camera. My large negatives are kept in paper envelopes or bags, stacked one against the other. This is the most convenient method, and I believe the one most usually adopted. But with the small hand-camera negatives, grooved boxes, each holding 100, are much more convenient. For one purpose or another, lantern slides, enlargements, gifts to friends (I don't do much of this now), illustrative objects, Christmas cards, etc., my hand-camera negatives are in such constant requisition that anything but a most systematic method of storage would cause cuss words every day almost.

Several friends have told me that "System will be the death of you," or "You are too confoundedly systematic." It may be so, and undoubtedly I go to a considerable amount of trouble. But this is well spent, as my

System. friends would find if they had to refer to particular negatives or prints. To start with, the hand camera is conducive to system. With the ordinary camera, we take, as a rule, just what pleases us, in pleasing variety of subject. And, with the exception of one or two holiday trips, we follow out no series. The negatives, in fact, form little groups, of six to twelve, of different places. With the earnest hand-camera worker, however, matters are different. For instance, he is always adding to his stock of street scenes, marine, animal, and other divisions. And therefore some systematic way of dealing with the results is desirable.

My own method is as follows:—

- 1.—A negative register in which appears the date, the place, the subject, and the register number.
- 2.—Each negative numbered from the register on the top left hand corner. This is done before printing.
- 3.—As the prints are taken out of the frame the number is written on the back in pencil (black lead only).

I do not care to write the number or title on the negative itself so that it shows on the print, as it is so awkward when lantern slides are required. Besides, the writing overloads a little quarter-plate print.

4.—The album register, which divides out the various prints (by their numbers) into the different divisions. From this the ordinary albums are compiled, the number being written at the bottom of the page in readiness for the print. We all meet with accidents to prints, some stick to the glass when squeegeed down, others get stained or damaged, to say nothing of over and under printing. If the album be arranged first from the register, there is no chance of upsetting the order by omission. The page is there, and will remain blank until a good print is obtained, whilst the number at the bottom tells the negative required to fill the void.

5.—The albums themselves are numbered, as will be seen by a glance at the list already given.

6.—In the negative register a column is left for the insertion of the number of the album in which the print is placed.

7.—The grooved negative boxes are uniformly for 100 each, and a label is affixed outside.

201—300. Street. Torquay Trip. The Fair. Animals.

Inside the lid is pasted a list of the negatives and numbers. This often saves hunting up the register, because one constantly knows roughly about the place, and a glance at the list inside gives the exact number.

Now all this may at first sight appear a good deal of work, and I must admit it is. But just consider how convenient it

is for reference. A busy man often wastes the little time he has in ferreting out the negative and when it is found it is too late to print. I can find any negative in two minutes, or turn up the album and print as quickly. In concluding the question of system, let me add that in time the work becomes a pleasure if faithfully carried out.

In spite of the suitability of $\frac{1}{4}$ -plates and 5×4 plates for contact printing, I prefer to make my slides in the camera, so as to reduce the size a little, or alter the proportions. The

results are certainly better than those made by contact. I carry out the system of divisions even to the slides, by means of different coloured binding and masks, and by combinations of colours. But I will not weary the reader any further upon this question, except to say that the negative number is always written on the mask.

CHAPTER VIII.

CONCLUSION.

IN bringing these chapters to a close, I should like to explain that I have not descended—ascended if you like—to mere theorising, or to summarising the opinions of others from periodicals or books. I have related my own personal experiences and opinions, described my own methods of work, and generally dealt with actual practice. This naturally leads to the “great and only I am,” but I have carefully avoided throughout giving the idea of master-ship and authority. What I know about hand cameras and hand camera work has been learnt by five years’ constant use of various patterns. I have related these experiences, and the personal opinions which come naturally to every man, as they are more likely to be of service to the ever-increasing army of snap-shottists than yards of theory or tons of summary. I see men posing as authorities and laying down the law as to this or that feature being essential, such a camera the best designed, and generally dogmatising, who have only used a hand camera a few times, or have never worked with but one pattern. All I can say is that I must be somewhat of a dunderhead not to have learnt the truth so quickly as some of these authorities appear to have done. But true it is, I have still much to learn, to study, and to practise in the use of a hand camera. But that study will increase my love for it, and will strengthen my defence against the attacks of that Philistine, the anti-snap-shot man. My last advice is earnestness. Take up the hand camera with a determination to succeed, give it as much as—nay, more—study than the 10 x 12 or 8 x 10. Do not use it as a mere toy, a plaything for occasional fun. If you do, you deserve the failure that is bound to follow.

THE ILLUSTRATIONS.

THE STREET NEWSVENDOR	FRONTISPIECE.	
A typical London street scene. The place selected is generally a public-house at the corner of two roads; in the present case it is at the corner of Oxford Street and Tottenham Court Road. The contents bills are ranged all round on boards, and the newsvendor with his bag is talking to a customer.		
LANCERS IN TRAFALGAR SQUARE		PAGE 13
The advance guard of a troupe of Lancers just passing the Nelson Monument.		
BOOKING FOR THE EXCURSION.. ..		19
An outside or extra "excursion" booking office at Snow Hill (G.W.) Station, Birmingham. Passengers obtaining tickets for the regular Saturday afternoon excursion to Bewdley, Arley, Bridgnorth, and other pretty places on the river Severn.		
ON THE CUMBERLAND FELS		25
The river (North Tyne) from Temple Croft, Alston, looking towards Haltwhistle.		
"PITY THE POOR BLIND".. ..		35
A Birmingham street beggar. It will be noticed that the hand is held out for "the usual collection."		
ON THE QUAY. NEWCASTLE		45
Unloading sacks from a steam wherry. In the distance the Swing and High-Level Bridges.		
A PENNYWORTH O' FORTUNE		51
Taken at Penarth, near Cardiff. A penny invested, the woman knocks a bird down with a stick, who picks up a piece of pink paper upon which is the following:—"You will grow up to be a handsome man, the idol of the ladies. Ere long you will be loved by a charming fair-haired lady with a large fortune, and will be married. You will have four sons, one of whom will be an eminent lawyer." And it concluded with the following puzzle:—"Find the donkey?" The puzzle was easy to answer.		

THE ILLUSTRATIONS (CONTINUED).		PAGE
FROM THE TOP OF AN OMNIBUS		59
In Broad Street, Birmingham, the outgoing 'bus approaching.		
"I WISH I COULD GET AT 'EM"		69
Mr. Pug reflectively—"Rats I hope, mice I expect, rabbits by Jove."		
ONE WHO HAS THE SCRIPTURES "AT HER FINGER ENDS"		77
A blind scripture reader in St. Phillip's Churchyard, Birmingham.		
"SHALL I?"		85
A case of uncertainty at a public-house door.		
"DEAD MEN TELL NO TALES"		91
On the Pier at Tynemouth, Northumberland. Divers dresses laid out in the sun to dry.		
MILK AND BANBURY CAKES		97
A scene at Hereford Railway Station.		
THE FAIR. COUNTRY VISITORS		107
Arrived from the country, determined to have a good afternoon's frolic midst shows, swings, and ice cream.		
BALLOON ASCENT WITH PARACHUTE		111
Taken in the Sophia Gardens, Cardiff. The whole arrangement for this dangerous business is clearly shown in the picture.		
CURIOSITY		117
The mother off, up the hill, the two lambs, however, anxious to know what is going on.		
PELICANS		121
A shot in the Zoological Gardens, Antwerp.		
NATTRASS GHYLL		125
A sample of brook scenery, taken near Alston, Cumberland		
"BOTHER THIS PADDLING"		129
When it comes to putting on and taking off the shoes and stockings several times a day, mothers and aunts are apt to get cross.		
"WHEN THE RED SUN SINKS TO REST"		135
A sunset study, taken at Largs on the West Coast of Scotland.		

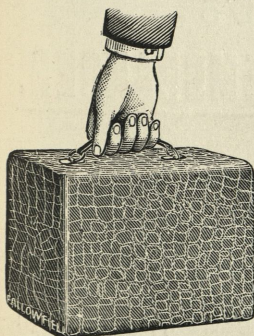
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- F 1 Solution of Hydroquinone Developer.
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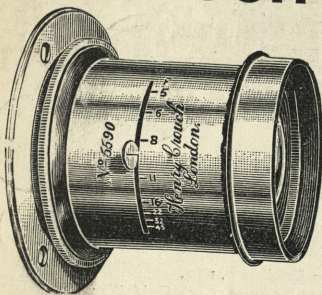
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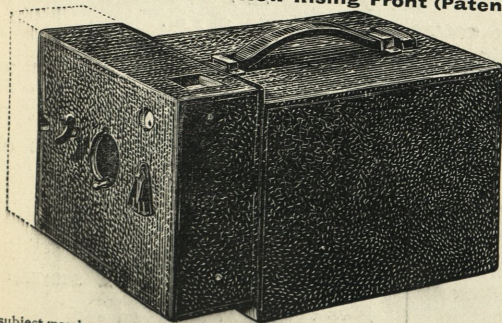
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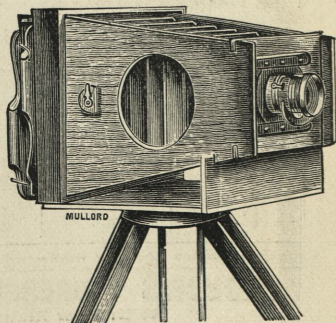
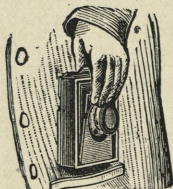


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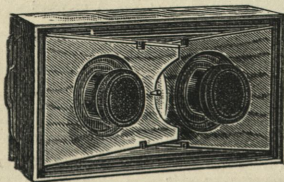
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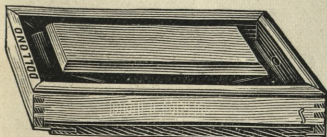
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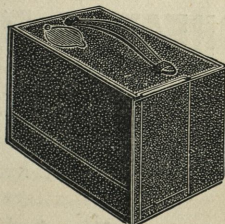
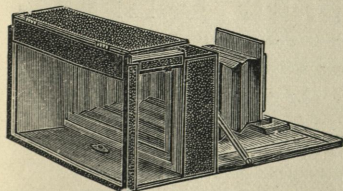
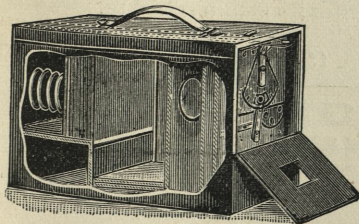
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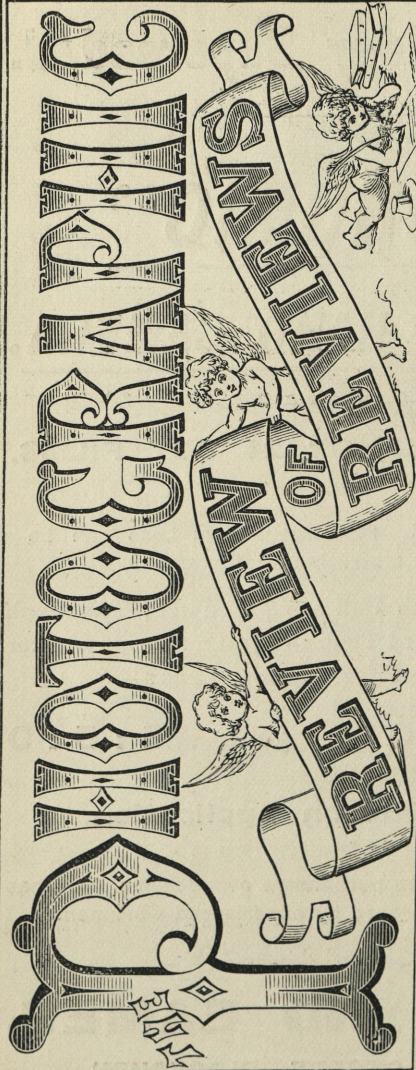
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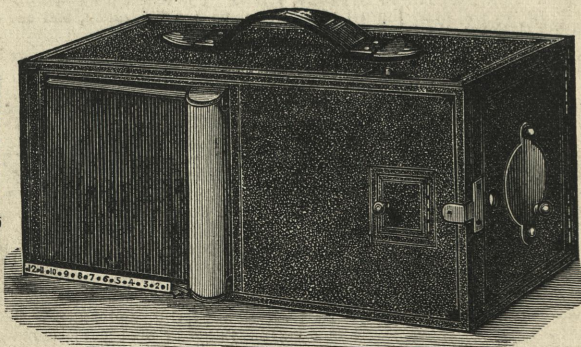
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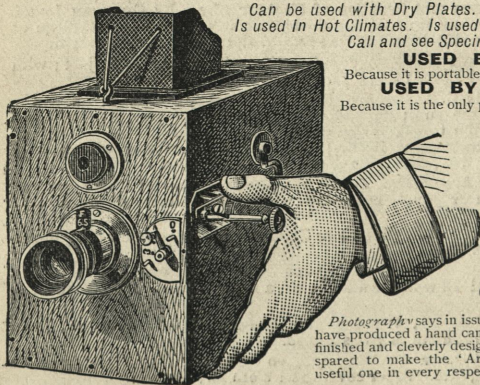
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